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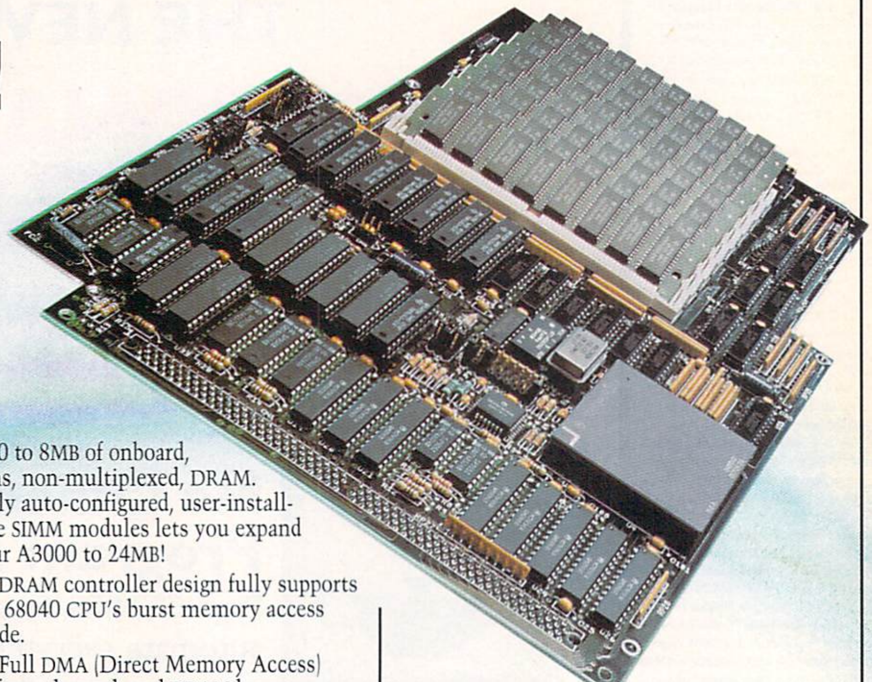
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▶ Software switchable 68030 "fallback" mode for full backward compatibility with the A3000's native 68030 CPU.

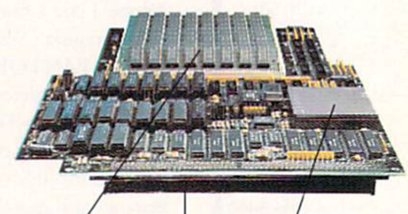
▶ Incorporates GVP's proven quality, experience and leadership in Amiga accelerator products.

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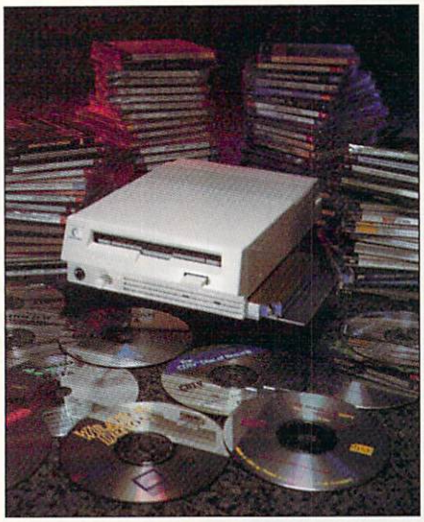
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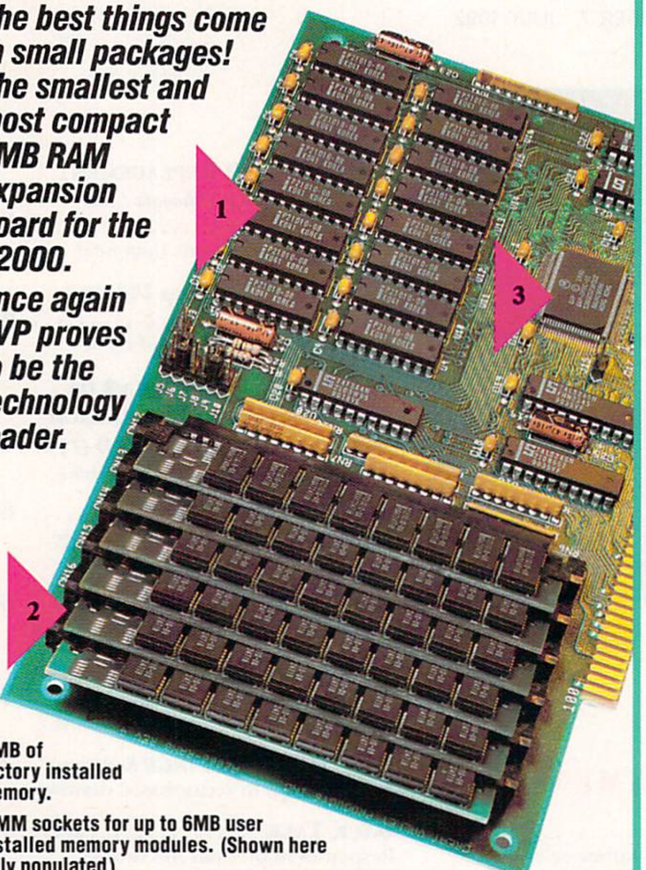
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COVER PHOTOGRAPH BY CHARLES BARTHOLOMEW



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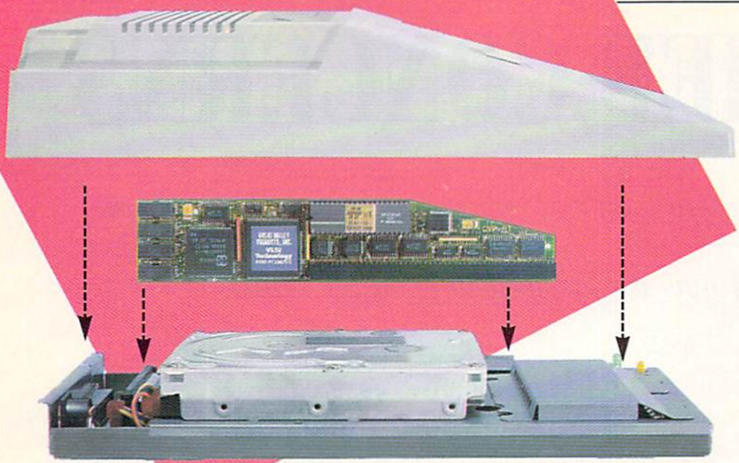
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Not only have we added a PC286 emulator option to our best selling A500 hard drive subsystem but our Series II™ A500-HD8+ units are now equipped exclusively with Quantum™ hard drives offering the fastest access times and data transfer rates, unique disk caching and the highest reliability (MTBF) rating in the industry. Coupled with our world acclaimed DMA SCSI controller, everything from loading software to saving files is so much faster that you finally have the time to enjoy the fun and productivity that you bought your A500 for in the first place.

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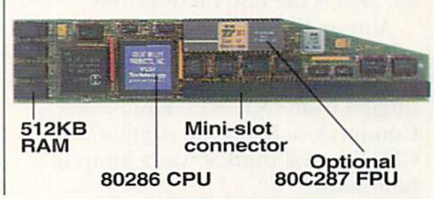
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- 16Mhz 80286 CPU. Up to 15 times faster than IBM's original PC!
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CHIEF CONCERNS

Most of the multitude of Amiga magazines have bit the dust—and now it's farewell to good old .info.

PROBABLY ABOUT A THIRD or a quarter of you flipped regularly through *.info*, and a slightly larger group likely read occasional issues. For those of you who read and liked it, I've got a spot of bad news: *.info* has suspended publication, and no new issues will appear unless a major investor is found. Of course, this happened once before, and *.info* made it back, so anything is possible.

Many disliked *.info*, mainly for its rambunctious, often obnoxious style. I'm not one of them. The magazine was far from perfect, but for me, that was part of the appeal. It was unpolished and up front. It didn't hesitate to ridicule (*AmigaWorld* was a regular target) and to let fly with opinions, no matter how ill-founded.

Fact is, it once called *AmigaWorld* issues "so generic it's hard to tell one year's issues from the next." And in 1988, it was nice enough to point out that we repeatedly referred to Dr. T's as Dr. Tease.

It reeked of personality. If you liked Benn and Mark, *.info*'s tag team of Amiga publishing, then you probably liked the magazine.

In my almost three years with *AmigaWorld*, I've seen the demise of *Amigo Times*, *Amiga Resource*, *Transactor*, *Commodore Magazine*, *Amiga Plus*, *A.X.*, *Amiga Sentry*, and now *.info*. Of them all, *.info* is the one I'll miss most.

Almost all the others were slicker and more informative, but none had the humor or the spirit. Like this nugget from Oct. '91: "From the way Commodore hides the computer in CDTV, you'd think it was a lump of plutonium."

Cracks like this didn't always endear these bad boys to the folks at Commodore. They lost a few more fans in West Chester after ranting at length about how Philip's CD-I would knock the stuffing out of CDTV, partly because CD-I had no computer capability! Since I've yet to speak with a CD-I owner (or prospective owner, for that matter), I'm not sure *.info*'s thinking was all that sound. Still, saying these things took guts.

HUMBLE BEGINNINGS

.info was started in 1983 by Benn Dunnington as a quarterly, slapped together in a spare bedroom with a $595 C-64, a single floppy drive, and a dot-matrix printer.

Let me tell you, it was just as weird when it started as when it ended. Originally called the *Cyborg Gazetter*, it was described as "an irregular newsletter of obvious bias, primarily but not exclusively devoted to the amazing Commodore 64."

Not a whole lot of first issues were printed, but by the second issue, the circulation had grown to about 50. It later rose into the thousands.

Although *.info* began as a C-64 book, once the Amiga arrived, coverage was split between the two systems. A couple of years later, it plunged headlong into the Amiga.

These guys became real Amiga enthusiasts. Covers were done with 3-D software, and its small staff wrote most of the articles. They were total weenies, even for a short while using bizarre titles like Editoroid and Senior Editoroid.

HUMBLE PIE

When magazines go under, consumers usually ask if there is something wrong with the market. *.info* itself disagreed with this notion last October, saying that "...magazines come and magazines go. Many of them are underfunded to start with, often launched by those with more zeal than business sense. We don't think interest in the Amiga is dying down at all, but has stabilized and specialized."

They added that many users read video magazines, and that these magazines "are adding more and more Amiga coverage."

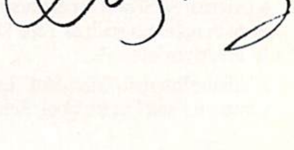
In fact, if you look at the Mac market, there are still only two major magazines. The Amiga magazine market was hugely overbuilt.

The demise of *.info* says more about a change in our market than a decline. *AmigaWorld* remains as healthy as ever, new special-interest Amiga magazines are now popping up, mainly in the video area, and other specialized magazines do devote significant space to the Amiga.

This theory may be difficult for outsiders to get. Richard Szathmary, a self-proclaimed expert on trade-magazine publishing (he is, after all, senior associate editor of *Sales & Marketing Management*, by gum.), recently published a column in *Magazine Week*.

Szathmary related a conversation he had had with a retired publisher, one of whose grandsons has an Amiga computer and therefore subscribes to *AmigaWorld*. "But how long can you keep a magazine like that going?" he quoted the publisher as saying. "There can't be enough editorial material month after month that's significantly different from what you covered the month before."

Maybe he's right. We may have only another decade or two left in us. ■





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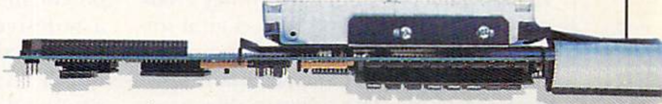
Plus, the G-Force 030 Combo plugs into your A2000's CPU slot, leaving all your normal expansions slots open and free for other uses!

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OVERSCAN

News, New Products and Networks

Welcome to the Industry! Amigas Accepted at NAB

LAS VEGAS, NEVADA—This year's National Association of Broadcasters show was exciting—and not just because a protester stormed the podium to smash Ronald Reagan's glass trophy. For Amiga users, the show was exciting because it indicated that the Amiga is now fully accepted by the video industry. Supporting this was the Amiga's appearance in the booths of several mainstream companies in addition to those of Amiga developers.

One of the most significant new Amiga video products is from ***Great Valley Products*** (RS# 101). The **ADDI** digital image-processing workstation is based on an enhanced Amiga and several proprietary programs. The software allows easy creation of keylayers and masks, using 24-bit digital video data, and it offers an incredible assortment of image-manipulation options.

The ADDI hardware provides all the muscle needed to push that information around: GVP's 50-MHz 68030 and IV24 true-color display, 16MB of RAM, a 420MB hard disk, a transcoder video interface, a genlock, a real-time framegrabber, support for Y/C, RGB, and NTSC, and an optional one-gigabyte removable optical drive. At around $20,000, ADDI does not come cheap, but it is much less expensive than comparable video systems.

Along with ADDI, GVP showed its **68030 and 040 accelerators**, **IV24**, and a redesigned interface for the IV24's **Macropaint** software. Also in GVP's booth was ***Octree*** (RS# 102), demonstrating the speed and the image quality of its new **Broadcast Caligari** 3-D system. Some fantastic Caligari-generated images backed up the product's claims.

Also present was ***RGB Computer & Video*** (RS# 103), which wowed folks with **AmiLink Professional**, a full-featured video-editing package. Available in Amiga, Windows, and OS2 flavors, AmiLink Pro supports up to 16 source VTRs and four record decks (both serial and parallel), VITC and LTC SMPTE/EBU time code, EDL, inter-format mixing, Video Toaster transitions and animations, and CMX 3600 edit decision list input/output. **AmiLink CI** and **AmiLink Jr.** are designed to work with less expensive gear, but offer many features of the high-end product.

NewTek blew people away with **Toaster 2.0** (RS# 104). While no other new products were evident, stay tuned—NewTek should have new items soon. Interestingly, people who earlier scoffed at the Toaster mentioned they are now ready to buy, and several companies announced "Toaster Killers." Among these are MS- ►

Games for All Players

Hoi Polloi! With five levels of complexity, hundreds of objects to maneuver around, and scores of pitfalls to avoid, **Hoi, Let's Play** ($39.95) promises to challenge all your arcade skills. Hoi offers a 256-color display (even on 512K Amigas) and on both PAL and NTSC systems.

In the graphic adventure **Lords of Time** ($49.95), you must guide a traveler through space and time. To keep your interest piqued, the program randomly selects various key puzzle elements each time you play. Contact ***Hollyware Entertainment*** (RS# 113) for details on Hoi and Lords of Time.

The military-history game **Rise and Decline of the Third Reich** (*Avalon Hill*, $39.95) includes military, economic, geographical, ideological and chronological elements. Choose human or computer opponents for either side (a special save function facilitates play by mail) and one of three European scenarios. The graphic interface promises to be a winner... how about you? (RS# 114.)



Help Hoi make his way through the Madlands.

Another WWII simulation, **Panzer**

Continued on p. 14.

Our Spirits Are in the Amiga World

NEW YORK, NEW YORK—April's World of Amiga show made attendees happy, whether they wanted to ramp up display resolution, plot a presentation, run a train layout, or dissect a corpse.

Great Valley Products brought the most exciting surprises, including its **EGS-110/24** ($2699 with 4MB of VRAM, $3399 with 8MB). Plugging into the 32-bit bus of GVP's A2000 '030 and '040 boards, this 24-bit retargetable-graphics board offers user-selectable displays of up to 1600X1280, including NTSC-, PAL-, and SECAM-standard screens. Most importantly, the board runs Workbench! With the supplied driver, EGS-110/24 promises to run most Amiga applications without modification.

IV24, GVP's other multifunction 24-bit graphics board, got a boost with the addition of a cable-TV tuner and the Video Interface Unit (VIU), a video-transcoder available in basic (VIU-S) and professional (VIU-CT) versions.

For converting, touching up, and animating

Continued on p. 14.

To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 100.

DOS/Windows products Matrox Studio (about $10,000) and The Video Machine (around $4,000) from Germany's FAST Electronics.

Digital Creations impressed crowds with **DCTV** and its applications. Some made such remarks as "With this, why do I need an expensive paintbox?" DCTV was also a hit with those who need full NTSC animation but lack a frame-accurate VTR. At one display I saw a **Super-Gen 3000**—a new external genlock for the A3000—and an **RGB adapter** for DCTV, which should be finished soon. Finally, the two-channel TBC **Kitchen Sync** drew attention from budget-minded shoppers. (RS# 105.)

DPS, an innovator in low-cost time-base correction, showed its **Personal TBC-II** and its new **Personal Vectorscope** and **Personal Waveform Monitor** cards, all of which generated a lot of interest (RS# 106). Nearby, ***I.Den*** displayed its new **Amiga TBCard**, sporting an optional external controller (the TR-7). With a well-deserved reputation for quality, I.Den seems to legitimize the TBC-on-a-card market. (RS# 107.)

Present in both Sony and Panasonic booths was ***DiaQuest*** (RS# 108), maker of the **DQ-TACO** animation controller for Amiga. Diaquest controllers seemed to be the device of choice at both booths. Multimedia guru Martin Ricketts kept an A2000 busy recording a Caligari animation to a ***Panasonic*** **recordable laser-disc system** (RS# 109).

United Media (RS# 110), well known for its video-editing products, showed some new Amiga devices. Its **VAC-110** is a GPI controller for use with the Video Toaster, while its **VAC-120** is a single-frame controller for animation work with any RS-422 video recorder.

Finally, ***Sony***'s new **EVO-9650** Hi8 VTR is well worth mentioning—even if it is not an Amiga-specific product. Designed as a VTR for animators, it is fully single-frame capable. (RS# 111.)

—*LRW*

Hi-Res Star

Ameristar Technologies announces **1600GX**, a hi-res, 32-bit, graphics board for the A3000. While the palette is set at 16 million colors, both the resolution and pixel-output rate are programmable—up to 1600×1280 and 180 million pixels per second, respectively. The card also supports such noninterlaced resolutions as 640×400, 800×600, 1024×768, 1152×900, 1280×1024, and 1600×1200. The on-board graphics processor promises a drawing rate of 100 million pixels per second and draws quadrilaterals, triangles, lines, and points at full video-memory bandwidth.

The board directly supports X-Windows drawing modes and a direct-access, memory-mapped framebuffer for image processing. Several developers are working on software versions to take advantage of the board. Among these are GfxBase, which will support Commodore's A3000UX system as well as X-Windows. The 1600GX is available on its own for $2495 or bundled with a Mitsubishi Diamond Pro 20 monitor for $5995. (RS# 118.)



ON-LINE SCAN

By Tim Walsh

As I write this, the stock market is a picture of prosperity. While the economic health of much of the world teeters on the verge of collapse, Wall Street has ridden a crest of record-breaking highs. Because catchy phrases like "severely insolvent" and "bad credit risk" are peppered throughout my financial dossier, I'm not in a position to invest. But those who have survived the recession thus far with money in hand may find it the perfect time to jump in.

While the networks cannot ensure that you'll buy low and sell high, they can get you the necessary information—and fast. Serving as the most direct connection to Wall Street, telecommunication is essential for savvy investors. Outfit your Amiga with a modem and a network account, and you can quickly become as susceptible to heart palpitations as any over-paid investment agent.

Bigger = Better

If you are serious about investing, CompuServe is a logical choice for a network account. Its most valuable investment service is the Money Matters area. Within this busy department is an area called Quotes, which gives you timely stock-price reports. In the subarea Highlights, you can find such options as Current Quotes, Highlights from the Previous Day, Commodity Markets, Mutual Fund Analysis, Investment Analysis, and Current Market Snapshot. The latter gives you the major indexes—such as Dow Jones Industrials and S&P 500—and their respective highs, lows and changes from the previous day. It also lets you monitor foreign exchange rates.

GEnie, too, offers timely information. Part of the GEnie* Basic services, the Money Matters/Personal Finance RoundTable includes Closing Stock Quotes and three bulletin boards, including one where you can post and read investment-related messages.

GEnie's Investing RoundTable offers a smattering of services, including Dow Jones News/Retrieval and Charles Schwab Brokerage. The former offers more than 60 databases (at extra cost) and lets you monitor stock action as it happens on Wall Street. Calculating that extra cost is not easy, because most prime-time price checks are variable, but I figured an average of about $1.56, plus $.90 per Information Unit transmitted. (An Information Unit is "1000 characters, including carriage returns and spaces.") Nonprime-time checks run a fraction of that, with most around $.15 plus $.24 per Information Unit.

Please note that GEnie does not recognize pre-existing Dow Jones accounts. If you currently have a Dow Jones account, you must establish a separate one on GEnie to access via the GEnie Gateway. Also, to obtain the navigational commands and codes for accessing the information, you must order a $9.95 News/Retrieval User's Guide.

Modest Returns

The smaller networks do not fare as well for investment information. BIX offers a Finances area that is broken down into numerous smaller categories, such as Taxes, Trends, Personal, and my personal favorite, Flames. These areas are not sources of news, leads, and stock activity, but rather provide a platform where BIX users can share financial experiences, flaunt their financial knowledge, and post comments and questions. Do not write off this banter, though—financial discussions rarely make for boring reading.

Portal offers only the UPI Newswire (within the Clarinet gateway service) for financial updates. While there are no stock market listings, the news is updated throughout the day. In addition to normal connect charges, the Newswire service is an additional $4 per month.

BIX
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DSS Stretches the outer limits of 8-bit sound

- Create your own 4-track, self-playing musical compositions.
- Make soundtracks for home video, animation or visual presentations complete with voice-over, sound effects and music.
- Analyze voice patterns and stereo separation.
- Analyze graphic equalization of real-time sound.
- Remove "pops" from old phonograph recordings.
- Create custom instruments and sound effects by collecting and/or modifying pre-recorded instruments, voice, or sounds from any source, and use them in your own compositions.
- Save your sound and music to disk or send it out via modem for replay on any Amiga.

Check out these unparalleled features

✓ AmigaDOS 2.0 compatible; written in assembly language.

✓ Multi-tasking operation.

✓ 68020 and 68030 compatible.

✓ Comprehensive tutorial manual helps even beginners get started right away.

✓ Intuition-based graphic interface makes operation easy.

✓ MIDI-in capability.

✓ Direct interface between sequencer and editor.

✓ Hold 31 sound samples in memory at once – all shown on screen so they are easy to manipulate.

✓ Effects and processing capabilities include echo, mix, filter, re-sample, sound data inversion, playing sounds backwards, loops, fade-in/fade-out and more.

✓ Manipulate sound samples in real time, as you listen.

✓ Create sampled instruments with 1, 3 and 5 octaves.

✓ HIFI recording for highest quality playback.

✓ Controls for faster/slower playback and filtering high frequencies during playback.

✓ Load and save samples, songs and instruments in multiple formats.



✓ Multiple effects for each note.

✓ Stereo and monophonic operation. Also convert mono to stereo or separate stereo.

✓ Auto-playing music modules.



✓ Real-time oscilloscope and spectrum analysis.

✓ Real-time reverberation.

✓ Graphic editing of wave forms through easy-to-use functions, including zoom in/out and precision controls for position, frequency and amplitude.

✓ Draw sound waves freehand using the mouse.

✓ Direct editing of individual sample numeric values.

✓ Maximum recording speed of 51,000 samples/second (38,908 samples/second in stereo).

✓ Savable Preference settings.

✓ Saves in IFF, SONIX or RAW formats.

✓ Compatible with SoundTracker, NoiseTracker and SoundFX modules.

DSS 8
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New Worlds

Centaur Software has updated **World Atlas** to version 2.5 ($59.95; upgrade just $10). Completely rewritten in C, the program reflects recent statistical and political changes and features hard-disk installation, print functions, AmigaDOS 2.0 compatibility, and an ARexx interface (RS# 128).

Version 3.0 of ***Prolific***'s **Pro-Board** circuit-board design program adds full autoplacement and autorouting, allows increased routing density, and directly supports 18-layer PCBs as well as HPGL and Photo plotters. The list price is $439; current owners should contact Prolific for upgrade details.

Fully compatible with the new Pro-Board—and versions above 2.0A—is Prolific's **Pro-Drill**, which lets you quickly specify Pad, Via, and custom hole sizes for PCBs. It supports the True-Drill format and costs $89. (RS# 129.)

Assume you've seen the latest in hypertext? Think again! **Thinker 2.1.4** is here, and can treat any CD-ROM database as a Thinker document. Replace clumsy searches with direct subject-to-subject hypertext links—and modify read-only Thinker documents. A better interface and ARexx support round out ***Poor Person Software***'s new offerings. (RS# 130.)



Together at last...as GFX-CAD

Doug's Color Commander palette-control program is now noncopy-protected and compatible with Workbench 2.0. It can screen print and offers a save-delay feature, too. DCC 1.0 owners can upgrade for $10 through ***Seven Seas Software***. (RS# 131.)

Bars&Pipes Pro has a more polished image, thanks to a few enhancements and bug fixes. Version 1.0e, available to registered owners for $9.50 from ***The Blue Ribbon SoundWorks***, also allows full access to the Pro Studio and Creativity kits. (RS# 133.)

The latest version of AVT's X-CAD Professional joins Grafx Computing's X-Shell 3.0 menu interface to form **GFX-CAD** ($359). Purchase of the integrated package gets you stateside tech support and a six-month CAD newsletter subscription. Already have one or both components? You can upgrade for $49 or $169. A rewritten manual accompanies the new X-Shell. Contact ***Grafx*** for details. (RS# 134.)

Colorized Movies

Your children can learn about the environment while having fun with the **FernGully Computerized Coloring Book**. Based on the movie *FernGully...The Last Rainforest*, the program lets kids combine their choice of five backgrounds and over 20 characters (including Crysta, Pips, Batty Koda, and The Beetle Boys), color them in 16 colors, and then print. **The Parent/Teacher Learning Guide** suggests entertaining projects (such as story-book making) and educational ones (such as preservation).

Do your kids prefer the movies **Home Alone** or **Rock-A-Doodle**? Then choose one of these "coloring books," which come with learning guides that center on child safety (Home Alone) and friendship, courage, and rock-and-roll (Rock-A-Doodle). Designed for ages three and up, each program is $29.95 from ***Capstone/IntraCorp.*** (RS# 112.)

Indeed, 3-D!

Designed to make computer modeling as similar as possible to clay modeling, **Animatrix Modeler 1.02** (***DuBois Animation***, $99.95) loads and saves in Sculpt, Turbo/Imagine, and VideoScape formats. You perform all operations on a single full-screen view of the object, which you can turn to any position in real time.

The modeler distinguishes near edges from far with brighter coloring, and lets you select individual faces for shaded display while modeling. It also provides single- and grouped-point editing, subdivision of faces and edges, magnetism, and more. Animatrix is compatible with AmigaDOS 1.3 and 2.0 and requires at least 1.5MB to run (3MB is better). A demo version of the program is $18, $15 of which applies toward purchase. (RS# 125.)

Platonic solids; prisms and antiprisms; Archimedean solids. These and more are in **Polyhedra** ($25), ***Technical Tools***' collection of over 50 geometric solids for use with Impulse's Imagine. Each object comes in wireframe form, which shows its polyhedral structure, and in solid form, with faces colored to indicate symmetry planes. (RS# 126.)

Now available in Caligari2 format (in addition to Imagine and LightWave versions) is ***Unili Graphics***' **Broadcast Fonts 3D** ($149.95). It offers nine traditional-style font sets that include 30 punctuation marks. An **International Character Supplement** is available separately for $99.95. All characters are designed to optimize Phong shading. This version is the first to incorporate Unili's AQPoints system for maintaining proper angle thresholds during curve generation. Contact Unili for a free demo. (RS# 127.)

Financial Assistance

Need help with your finances? **LPCalc** (***Solid Gold Software***, $49.95), **Retail Escort** (***Mr. Hardware***, $499.95), and **Home Front 2.0** (***Designing Minds Software***, $99.95) are up to the challenge.

LPCalc—Linear Programming Calculator—is a business-planning program that combines a spreadsheet-style window interface with the behavior of a command-driven database. Several manufacturing and financial templates are included to start you analyzing data and generating reports. (RS# 119.)

Designed for retail businesses, Retail Escort includes customer and supplier databases, inventory control with stock balancing, order tracking with a back-order function, label printing, invoicing with account aging, a price-quoting function, ready-made forms and reports, and password protection. To run Retail Escort, you'll need 1MB of RAM, a hard drive, and Oxxi's SuperBase 4. (RS# 120.)

For your home or small business, Home Front 2.0 handles several functions—accounting, cost forecasting and loan analysis, and address, home-inventory, tax, and recipe management. It promises to support 99 accounts with 1000 categories and more than 32,500 transactions. Other useful functions include automatic backup and check and graph printing. (RS# 121.) ►

Games, from p. 8.

Battles (***Strategic Studies Group***, $49.95) recreates six scenes from the Russian Front. The game follows the popular Halls of Montezuma release, and also includes SSG's acclaimed WarPlan and WarPaint kits to let you change scenarios, create new battles, or alter the landscape. You'll need 1MB of RAM and Workbench 1.2 or 1.3 to play; two drives are recommended. (RS# 115.)

Also requiring 1MB is **Lavandiss** (***Cottage Software***, $39.95), a role-playing adventure. In it, you become a sorcerer's apprentice who must gather spells and power to defeat awful ogres. Play using one of the game modules included or create your own, adding original maps, potions, spells, and monster habitats. (RS# 116.)

More role playing awaits you in ***Mindcraft***'s **The Keys to Maramon** (Electronic Arts, $49.95), wherein you play the hero or heroine attempting to end monster attacks against the town of Maramon. By day, you gather supplies and information from town. By night, you battle behemoths and explore the catacombs of Maramon, using your wits to ferret out the monsters' source and stop their terrorism. (RS# 117.)

Enter Here

The Video Association of Dallas is gearing up for its sixth annual Dallas Video Festival, scheduled November 5–8 at the Dallas Museum of Art. Now one of the largest video festivals in the US, it shows the "state of the medium" as art, entertainment, document, archive, and commerce. Among its special programs are KidVid, which offers workshops for children. The submissions deadline is August 17, 1992; call (214/651-8888), write (125A Henry St., Dallas, TX 75226), or fax (214/651-8896) the Association for details.

The entry deadline for *AmigaWorld*'s third annual Amiga animation/video contest is October 15. This year we seek 2-D and 3-D animations—of three minutes or less—depicting state-of-the-art style and technique. Among over $20,000 in prizes is a souped-up A3000. Send your entry on professional-format tape (3/4-inch, Hi-8 or SVHS) along with a VHS copy and enough disk material to prove it was generated on an Amiga. Or, submit it on floppy with loading instructions and player software, making sure it is easily installed on a hard drive. Direct entries and queries to Tim Walsh, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458.

World of Amiga, from p. 8.

graphics, GVP introduced **Mirage** ($259), a 24-bit image processor that can access your hard-drive space as virtual memory. It offers many 24-bit draw and paint modes, an animation list editor, and the ability to load and save ANIM files.

Across the aisle, ASDG showed Art Department Professional 2.1.3 and its frame-editor animation module, FRED, while promising future ADPro upgrades...and even more advanced projects.

Better Pictures

Electronic Arts updated DeluxePaint in time for the show. **DPaint 4.1** adds scalable-font support, full-screen morphing, the ability to apply Stencil Paint across all frames of an animation, and a player utility for PAL mode.

Also marching in the enhanced-graphics parade was ***Amiga Centre Scotland***'s **Harlequin**, a 32-bit framebuffer offering 16 million colors and an eight-bit alpha channel. The Harlequin displayed stunning images from TV Paint (Tecsoft Images), a French 24-bit paint program that also runs on GVP's IV24 and EGS 110/24.

Foundation 3.0 ($100) now marches to its own drummer—it's distributed by ***Parallax Publishing*** instead of Impulse. The latest authoring-system version includes the MultiMedia Factory (an automatic stack builder), The Bottom Line (a money-management system), and CDTV-development functions.

Digital Vision A/S has updated its presentation program. The new professional features of **Scala Multimedia**, such as sound functions and controller and video device support, drew plenty of attention.

Scan Lines

"Great! It's about time the Amiga had this," was repeated like a chorus by crowds at the ***Migraph*** booth. With a handheld or flatbed scanner, **Migraph OCR** lets you scan a document and convert its text to ASCII and its graphics to IFF files.

Amidst the flashy graphics and video items were several solidly useful products. **Quarterback 5.0** (***Central Coast Software***) offers more hard-disk backup power and flexibility, and ***Hypermedia Concepts*'** **Fred Fish Collection on CD-ROM** provides over 600 floppies worth of software in one tidy package. Even better, the CD is configured for use as a ParNet node, letting you network CDTV to your Amiga. **The Application Base System** (T.A.B.S.) from ***Software Plus*** aims to make you better organized; with it you can set up menus to directly access applications, scripts, and files.

Without doubt, the most eye-catching display at the show was **The Great Amiga Railway**. Assembled through a joint effort of Amazing Computing, ASDG, and CATS (Commodore Applications and Technical Support), the trains and switches on the 15X14-foot HO layout were controlled entirely by the Amiga, which even provided digitized sound.

No less life-like was **The Dynamic Spine**, which combined laser-disc images of real cadavers (as well as living people) with an AmigaVision dissection and medical-education program. Dr. Pat Coughlin, of the Philadelphia College of Osteopathic Medicine, and medical student Mark Hysell are co-authors of the program. The system, intended as a training tool for medical professionals, should be available in July for under $6000. While no one could obtain proof, word had it that CBM officials spent their off hours in the booth pretending to dissect IBM and Mac marketing teams.

—LBL

Forty for Five Hundred

Progressive Peripherals & Software makes turning 40 something to cheer about—for A500 owners, too. The company's newest 68040 boards, which promise to run your A500 at up to five times the speed of a 68030-based machine, are due for release in June.

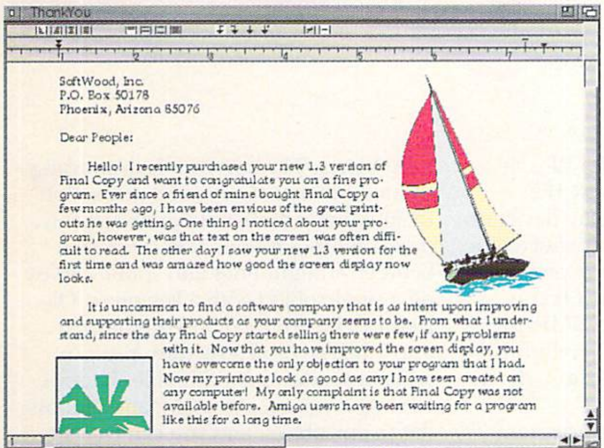
The **Progressive 040/500** combines a 28-MHz 040 with 4MB of 32-bit RAM and a floating-point coprocessor (to boost math-intensive tasks). A utility conveniently copies AmigaDOS into 32-bit RAM for system-wide speed enhancement. Although PP&S promises compatibility with most commercial software and hardware, a software-switch lets you access 68000 mode for complete assurance. Also, while the board provides 2.0 Kickstart ROMs, you can easily revert to 1.3.

The more economical **Progressive 040/500i** gives you all the features of the 040/500 except for the floating-point processor. (RS# 124.)

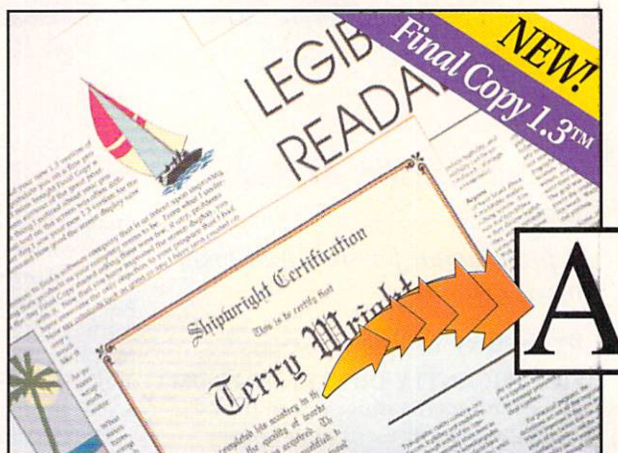
Have you developed a computer system that can fool judges into thinking it is a person? If so, join the Cambridge Center for Behavioral Studies' Quest for the Thinking Computer. Your artificial-intelligence system need be conversant on one topic only, and it could win $2000. (A computer that convinces judges it is human in an open-ended test will win at least $100,000!) Applications for this year's Quest must be postmarked by July 31. Finalists will join in a simultaneous, real-time competition on November 17 at Boston's Computer Museum. Call Dr. Robert Epstein in California (619/534-6281 or 619/454-3160) or in Massachusetts (617/876-2716) for details.

Overscan is compiled by Barbara Gefvert, Linda Laflamme, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

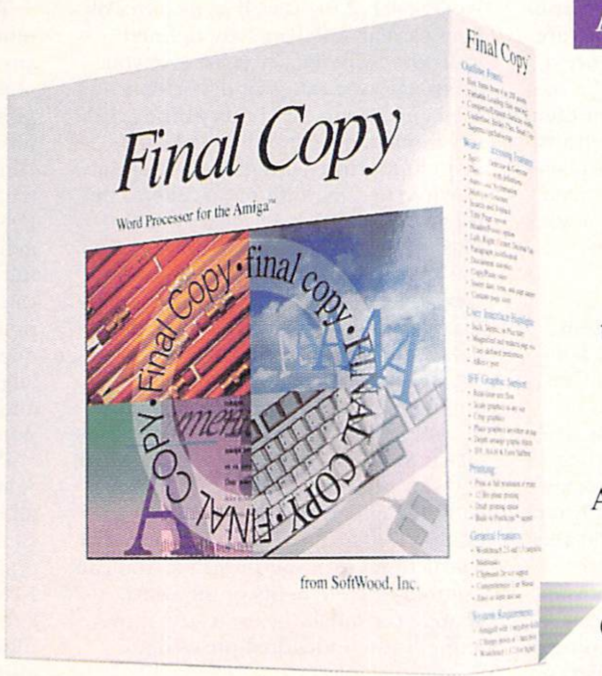
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Comparison Chart	Outline Fonts Included	Crop Graphics	Load Simple HAM graphic	Thesaurus Synonyms	Speller Words	Snaking Columns	Graphic Text Flow	Automatic Hyphenation
Final Copy 1.3	35	Yes	3.5 sec.	470,000	116,000	1-6	Yes	Yes
ProWrite 3.2®	0	No	1 min 20 sec	300,000	100,000	1-5	No	No

Comparison Chart	Price	Frame Graphics	24 Bit ILBM Support	Thes. with Definitions	Page Views	Print 1 pg. Document	ARexx	Use Amiga Clipboard
Final Copy 1.3	$99.95	Yes	Yes	Yes	25-400%	53 sec.	Yes	Yes
ProWrite 3.2®	$174.95	No	No	No	No	2 min 5 sec	Yes	No

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REVIE

Presentation Master
Oxxi

A professional for slide and print presentations.

By Geoffrey Williams

SIGNIFICANTLY DIFFERENT FROM other multimedia programs in the Amiga market, **Presentation Master** (***Oxxi***, $299.95) resembles such Mac and IBM products as Aldus Persuasion and Microsoft PowerPoint. Presentation Master's slide-creation capabilities are its power. You design and sequence a series of slides, and then print the results as PostScript files or present them directly from the computer with transitions and animation. You can display the slides by clicking on an on-screen hot spot, specifying a timed sequence, or randomly accessing sequences.

Follow the Template

Creating a basic slide is easy. Presentation Master includes 16 template families, each of which has seven template types, and you can easily create your own. Slide templates have several areas for text, each with its own formatting (font type, position, text attributes, and color). To create a text slide, simply type in the text or import an ASCII file after choosing the appropriate template. Basic word processing features let you edit the contents. Each new line can automatically have a bullet preceding it, and a line's formatting can be based on its level of indentation. If you load in a new template, your text is automatically reformatted to the new layout.

Presentation Master handles text (and graphics) color by allowing you to set a 256-color palette from the available 16 million colors, which are represented on screen by up to 30,000 dithered colors. The program even supports CMYK and Pantone colors (if you hand-enter their values and make a table ahead of time). While Presentation Master can create 24-bit images and print them as PostScript files, it can't save those files as 24-bit IFF images or use a 24-bit display device. I hope correcting these major shortcomings is a priority for the next version; an encouraging note is that Oxxi is working on supporting the DMI's Resolver and Progressive Peripherals and Software's Rambrandt through the SAGE protocol.

Presentation Master supports standard Amiga fonts and CompuGraphic scalable fonts (the standard under Workbench 2.0), as well as its own PolyFont format. PolyFonts are defined individually by Bezier curves, so you can perform a range of distortions on them, even point-by-point editing. Like CG fonts, the 12 supplied PolyFonts print at a printer's highest resolution.

While text handling is excellent, this is only a small part of Presentation Master's slide-making capabilities. You can create charts by importing ASCII spreadsheet data into a simple spreadsheet form or by typing in the numbers. You can highlight the areas you want plotted and then choose from among 17 chart formats, from spline graphs to the standard pie chart. These charts are object-based drawings, which you can print out in high resolution with no jaggies. In addition, you can edit them like any compound object in a structured drawing program. You can ungroup the elements of the chart, change the labels, or even size, move, and edit the individual pie wedges.

Draw It Yourself

Presentation Master's integrated drawing program rivals the Amiga's best stand-alone structured drawing packages. It has a full complement of drawing tools, with magnify, snap to grid, polygon, freehand, and even rounded-edge boxes. The curve tools draw using splines, but you can convert any spline to an editable Bezier curve. When you draw multipoint lines, you can switch between straight lines and spline curves on a single object with a key press. Objects can be grouped and ungrouped into a hierarchical structure. You can add automatic and adjustable shadows, edging, outlines, extrusion, and embossing to any object, and you can type in text to be rendered as an object using PolyFonts or Compugraphic fonts.

The drawing editing tools let you move, rotate to any angle, and reshape any object. You can bend and skew objects from any corner or at the midpoint. The perspective distortion feature lets you create a 3-D look. Fit to Circle fills an adjustable circle with any paint object, including text. Using the PolyFonts, this is the best text-effect generator on the Amiga. You also have full control-point line editing, and you can easily add additional control points. The Object Arrangement requester lets you arrange objects, adjust alignment and spacing, match sizes, and even do morphing and color interpolation between objects.

Presentation Master lets you import Adobe Illustrator EPS files, and unlike all other Amiga drawing programs, you can display these files on screen and edit them. Included are 3.2 megs of EPS clip art and a read-only copy of Cross-DOS so that you can load EPS files from IBM-formatted disks. Presentation Master would not, however, load Professional Draw images saved as EPS files or Professional Draw clips.

Each slide is made up of multiple layers of text and graphics, and you can import IFF images (even 24-bit and IFF brushes) and use them as backgrounds or scale and crop them. You can also remap colors and mix resolutions between slides.

Show the World

Once you've created your slides, you can sequence them with the slide

For information about the vendors of products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 100.

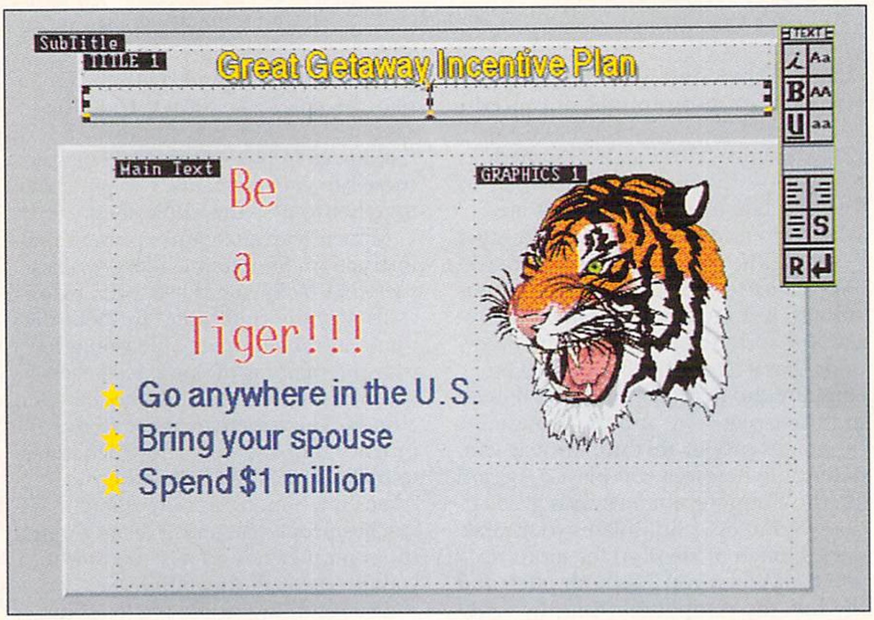
sorter, which uses the analogy of a slide rack. Slides are represented by miniature thumbnails of their images, and they can be dragged from one place in the rack to another. You can also preview individual slides and sequences, and you have a choice of 33 transitions for presentations, each with variable speed. To access sequences of slides, you can use the function keys or set up rectangular hot spots on an image.

Because most of the slides have structured objects, they would not appear on screen quickly enough for a real-time slide show. Using the included Vulcanizer utility, you can convert the images into IFF pictures that the distributable player can present. I hope future versions of the Vulcanizer will offer the option of creating DCTV images from the slides, as well.

Sound support is also lacking. While you can use the Narrator device to speak text attached to or within a slide, I would like the ability to play digitized sounds. Oxxi is working on adding ARexx hooks, however, which might get around the program's inability to play sound or music.

While it may be lacking in some areas as a full-featured multimedia program, Presentation Master's printing and PostScript slide-making capabilities are outstanding, allowing you to create full-resolution, 16-million-color slides. You can also print miniature slides with speaker notes, 1-Up and 3-Up audience handouts with lines for notes, and storyboards with from 2 to 40 images on a page.

Such a multitude of features requires plenty of space and explanation. Presentation Master requires about 12 megabytes of hard-disk space for itself, its backgrounds and its clip art, plus two megs to run. (The flexible installation utility is a breeze.)The hefty program comes with a booklet showing all the clip art, a Quick Reference Guide for the templates and fonts, and a well-organized 544-page manual with an excellent table of contents and a complete index that would be great were it not inaccurate. (I found several references that were off by two or three pages.) If the manual seems too daunting, consult the interactive on-line help.



Presentation Master lets you easily design, order and show slides.

Presentation Master is a powerful program that excels at making slides, is one of the best structured-drawing tools available, and does a very adequate job of creating interactive slide shows (although it falls quite short of the power of such programs as AmigaVision for true multimedia presentations). For the power that it has, Presentation Master is an outstanding value. Because additional features can be added through modules without changing the program itself, we can expect a continual evolution and improvement of an already superior product.

The Miracle Piano Teaching System

The Software Toolworks

Results without tedium.

By Daniel Greenberg

AS A KID, I always secretly thought it would be very cool to be able to play the piano, but going to lessons was as enjoyable as going to the dentist. So I never learned.

Rigorous teaching methods and a dogmatic insistence on perfect technique are essential for transforming a dedicated student into a master, but can be detrimental in transforming a novice into a dedicated student. The idea behind the **Miracle Piano Teaching System** (***Software Toolworks***, $479.95) is that children and adults can have fun playing with a music lesson just as they would with a computer game.

A hardware and software combination, the Miracle System includes a sturdy keyboard with 49 velocity-sensitive keys that plugs into the serial port, two four-inch stereo speakers that deliver bright, clear sound, MIDI in and out ports, 128 internal digitized instruments, a simple, foam sustain pedal (with a nonstandard plug, so it can't be replaced), and a pair of headphones for the sake of peace and quiet in the rest of the household.

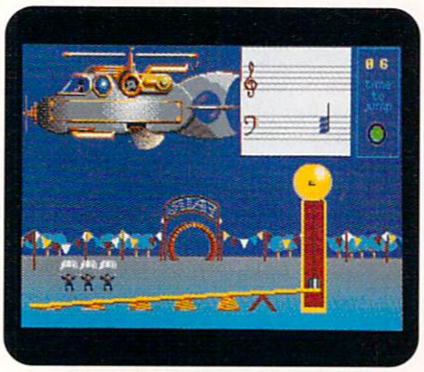
The responsive, full-size keys detect the velocity of each keypress, so you can coax a wide range of dynamics from them—a feature lacking in many other keyboards in the same price range. Although the keyboard is good, the software is the soul of the machine. The music lessons that are the main focus of Miracle are supplemented by a battery of entertaining and educational subprograms for practicing, performing with full accompaniment, playing video games, and even laying down MIDI tracks. The variety, interactivity, and high quality of these programs make the learning experience a lot of fun.

Music Theory

What the Miracle system does very well is to mix playing with learning. The lessons include on-screen instructional text, practice sessions, games, and a final performance for each ►

chapter. They start with very simple steps and progress to such advanced course work as syncopation and staccato rhythms. Three well-designed manuals supplement the on-screen lessons. The teaching methods are both solid and very well thought out.

The miracle of Miracle is its remarkable ability to tailor instruction to individuals. It can track which key was pressed and the duration in microseconds that it was held. Because it can compare the note played to the notes in the current song and the duration to the song's proper rhythm, Miracle can determine how well you played. Best of all, the computer understands gradations of success, and isolates your weaknesses (pitch or rhythm) for more practice. When you lose both pitch and rhythm, the computer breaks the song down into short sections for more practice, or plays the piece properly for



The Miracle Piano Teaching System's Ripchord game makes playing chords lots of fun.

you to hear. When you master the piece, Miracle rewards you for a job well done, and moves on to the next section.

The main program menu is arranged like a music conservatory, complete with a classroom for learning lessons, an administrative office for program management, a studio for recording songs in full eight-voice MIDI, a rehearsal room for practicing any piece in the Miracle repertoire, and a performance hall for playing it with full blown Miracle accompaniment. Of course, no school is complete without a place for fun and games, so the conservatory also comes with a video arcade.

The software presents the informative part of the lessons through clear, on-screen tutorials, with hypertext links for the musical terms and Help screens for program navigation. The keyboard plays the song for you, and then breaks it down into notes and rhythm. You play the notes without regard to the rhythm, and then play the rhythm without regard to pitch. When you master these two vital elements, you put them together to play the whole song.

Miracle's arcade games present real instruction. Shooting Gallery teaches melodies by having ducks swim by on a staff; play the right notes to shoot the ducks. A difficult part of learning to play the piano is the practice necessary to teach the hand to alternate between chords. The Ripchord game makes this practice fun; you play chord sequences to make parachutists jump on cue. Aliens is a Simon Says-like game that teaches proper fingering (even though the computer has no way to know if you use the right fingers).

The recording studio is a lot of fun, and may keep you occupied as long as the lessons. Budding composers can create new compositions, record variations on old ones, and play along with their own music. Don't be surprised if you or your kids outgrow this elementary recording program, however, and want a full-blown sequencer. Fortunately, the Miracle keyboard comes complete with MIDI in and out (but not thru) ports, and it is ready for use with professional music packages. (The Blue Ribbon SoundWorks offers several utilities for using Miracle with Bars&Pipes.)

Although Miracle works very well (even under 2.0), I do have a few minor gripes. Because the software is in medium resolution (640×200), the staff lines are just a little too thick. As a result, notes that are on the lines of the staff do not appear to have a complete line through them. This approach is better than filling in the lines and making the half notes look like quarter notes, but not much better.

Also, if you back up a lesson in version 1.50 of the software, program load time becomes very sluggish. The Software Toolworks has an upgrade in the works that should help this. I hope a bit more user control over the lessons will be included, as well. Currently, you can back up to the previous lesson or skip to the next one, but you can't easily jump to any part of a lesson or sneak in a full practice session in the middle of an exercise without exiting the chapter.

Final Movement

So how did Miracle work? Well, despite my old fears, I found myself playing melodies within an hour, and complete songs with chords in three. I had expected the Miracle Piano Teaching System to relieve the tedium of music lessons, but I was not prepared for the sheer fun of it. The Software Toolworks has paid attention to what potential music students want and has come up with a winner.

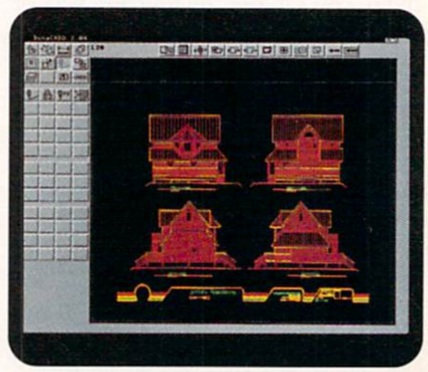
DynaCADD 2.04

Ditek International

An upgrade of dimension and flexibility.

By Ronald Bissett

WITH THE ARRIVAL of version **2.04, DynaCADD** (***Ditek International***, $995, first reviewed August '91) became easier to use and more compatible with other Amiga software and with non-



DynaCADD 2.04 offers more printing, exporting, and 3-D options than earlier versions.

Amiga CAD programs.

Topping the list of improvements is DynaCADD's rewritten 3-D mode. A new entity type, the 3-D face/solid and a hidden-line-removal subroutine make it an extremely powerful CAD tool for creating 3-D objects, which you can export for final rendering. Yes, the program now exports to Imagine, Sculpt, LightWave, Caligari, and VideoScape, among other rendering programs.

By using 2-D plans and elevations with version 2.04, you can quickly create an accurate representation of a residence, then convert it into an Imagine object and load it into Imagine's Detail Editor.

To greatly simplify object creation, you can use options that invoke automatic creation of 3-D faces with the Translate, Project, Revolve, and Sweep commands. In addition, you can project text entities in any font into 3-D ►


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A-Max II+
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READYSOFT
LOW ROM
HIGH ROM

entities and then export them to rendering programs—a fantastic capability. (Conversion instructions are provided for previously created 3-D planar entities.)

DynaCADD also offers several improved features for 2-D image creation and manipulation. For example, the new layer dialog box gives you complete control of and easy access to all possible layer attributes via toggles. With the layers' toggles on, entities inserted in a layer are created in its color, style, and weight. With the toggles off, the entity is drawn in the color, style, and weight with which it was created.

In addition, the maximum number of rotation or revolution copies has been increased to 3600, and coordinate tracking now has six digits to the decimal's left. A new feature with an old name, 2.04's TRIMINTOF uses the second entity selected as a reference to trim the first entity without affecting the second. (The original TRIMINTOF command is now called TRIMCORNR.)

Pathways to Other Platforms

Giving the program more flexibility, the improved DXF import and export routines work flawlessly. Additional layer, color, and style information now makes file conversion less subject to editing problems between the platforms. On the import side of translation, the program now supports 2½-D and 3-D entities, as well as 3-D extrusion using 3-D faces. Generally, the DXF routine conforms to the requirements of AutoCAD release 11, and it handles all six AutoCAD text justification modes. DXF-out was similarly upgraded and now also converts DynaCADD GCP tables (3-D information) to AutoCAD UCS-table information.

When swapping data between DynaCADD on the Amiga and its Atari and IBM cousins, the native DEF (Drawing Exchange Format) provides a more complete file transfer than the DXF format. The upgraded 3.0 version of DEF now includes 3-D view tables, color tables, GCP tables, Image tables, and many global variables.

Version 2.04 gives you more output options, as well. Several new plotter and printer drivers were added, including one for the HPLaserJet 300-DPI printer that handles output very efficiently and allows easy control over the image.

Finally, DynaCADD's new Network Support function promises to expand the program's usefulness in a large office, although I was unable to test it.

Ditek International seems committed to improving DynaCADD; the latest changes were badly needed, and they have been well thought out. DynaCADD 2.04 is a winner that can only get better.

Caligari2
Caligari Broadcast 2.1

Octree Software

Keep your 3-D work in perspective.

By Steven Blaize

THE FIRST PROGRAM to provide a perspective design space, Caligari Broadcast allowed you to create, animate, and manipulate 3-D objects in a real 3-D environment. This original version was also unique in that it required the Bridgeboard and rendered to a 24-bit Targa board—high performance at a high cost. With an eye deftly toward the competition, ***Octree*** ►

STUDIO 16™ IS DESKTOP AUDIO

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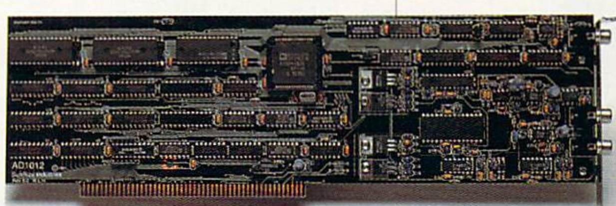


The Video Toaster goes a long way towards solving your video problems. But what about sound? Do you need to synchronize background music with your productions? How do you add footsteps, door knocks, and other sound effects to your video or animation? Do you need to fade, cross fade, or eliminate sections of audio? Can you edit your audio, or are you stuck with the first take?

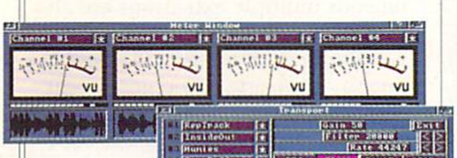
Studio 16 solves all these problems by turning your Amiga into a complete sound studio. With Studio 16's SMPTE support you can lock sounds frame accurately with your video. Audio triggers reliably, at the same spot, every time. Or you can quickly slip your audio effects, trying them at different spots. And since Studio 16 plays directly off hard disk, the number of sounds you can trigger is unlimited.

Each of Studio 16's four tracks can be metered and mixed. Unlike two track systems, Studio 16 can combine multiple tracks with no generation loss. And it can record while playing.

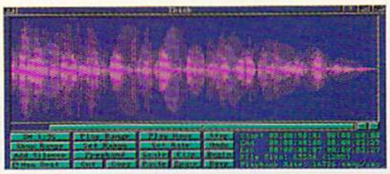
The Studio 16 sound editor graphs the audio waveform and allows you to cut, copy, and paste audio. Zoom, scale, fade, reverse, and many other functions are available. Edits can be non-destructive or permanent.



The included AD1012 hardware provides audio in, SMPTE in, and audio out connectors. Just plug your VTR, CD player, radio, tape deck, or other source directly in. Then record with 12 bits at sampling rates up to 80,000 samples per second. The AD1012 can synchronize and chase SMPTE time code at 24, 25, 29.97, and 30 fps.

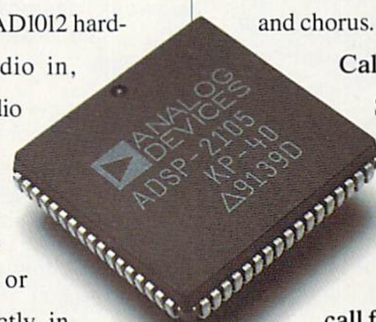


how does the 12-bit AD1012 sound? Absolutely great!
—Amiga World, 4/92, p.29



Designed to exceptional audio standards, the AD1012 offers CD frequency response and 70dB signal-to-noise ratio.

The AD1012 includes a special sound coprocessor—the advanced 2105 DSP. The DSP allows Studio 16 to perform real time mixing and high quality 16 bit effects. These include echo, flange, delay, and chorus.



Call today for a free Studio 16 information packet, (408) 374-4962. Fax: (408) 374-4963. Dealers: call for promotional package. Salespeople: call to join our commission program.

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Circle 57 on Reader Service card.

Software's upgrade offers more flexibility and creative tools at a lower price.

Octree ships Caligari in two main versions, basic **Caligari2** ($399) and **Caligari Broadcast 2.1** ($1995), plus a dedicated edition, Caligari Pro24 ($995), for GVP's Impact Vision 24 and Impulse's Firecracker 24. The interface and documentation of the three versions are almost identical. In addition, the basic package sports all the functionality and flexibility of the Broadcast version, minus the ability to render to 24-bit framebuffers (or files) and a few features that require a 24-bit board (merging a foreground image, and so on). With Caligari2 you can render—at 32-bit accuracy—a standard HAM image or render to a HAM-E (Black Belt Software) or a DCTV (Digital Creations) display.

For the extra $1596, Caligari Broadcast lets you render to several framebuffer devices as well: Firecracker (Impulse), Harlequin 24- and 32-bit (Amiga Centre Scotland), Impact Vision 24 (Great Valley Products), Targa, Targa +, and Vista (Truevision; Bridgeboard needed), and Framebuffer (Reliable). Owners of TIPS, a paint program for Targa and Vista boards, can conveniently access the program directly through Caligari. (I wish this feature were extended to Light 24, DCTV Paint, ImageMaster, MacroPaint 24, and other upcoming 24-bit paint programs.)

Caligari Broadcast also interfaces directly with the VLAN and BCD single-frame controllers for rendering animations directly to tape. You can also render your files to disk as Rendition format files.

On the down side, Caligari Broadcast operates only on accelerated and floating-point chip-equipped machines and comes with a hardware dongle (this has got to go; professional software has not had hardware copy protection in years).

A Common View

All versions of Caligari have three main areas: Object Design, Scene Composition, and Renderer. As the name implies, Object Design is where you design your 3-D objects. Caligari works with such primitives as spheres, half spheres, cubes, cylinders, bullets, and so on. It is also able to load VideoScape, LightWave, and Sculpt 3D object formats, and it can save in VideoScape and LightWave formats). The extruder and lathe permit defined depth and degrees of sweep, respectively. While these tools are adequate, they do not include such options as extrusion along a path or rotation during extrusion.

Point editing carries the ball with flair here, offering the best interactive modeling available. Most 3-D programs provide you with orthogonal views (front, top, and side) and possibly a perspective view, but rarely are you able to edit in the perspective view. Caligari not only allows you to move about your space, but also to select points, edges, faces, or parts of an object and move them. Thus, to perform an extrusion with rotation, you could extrude, select the back set of points and edges, sweep them into another section, and perform any scaling or rotation as required. Simultaneous multiple extrusions are also possible.

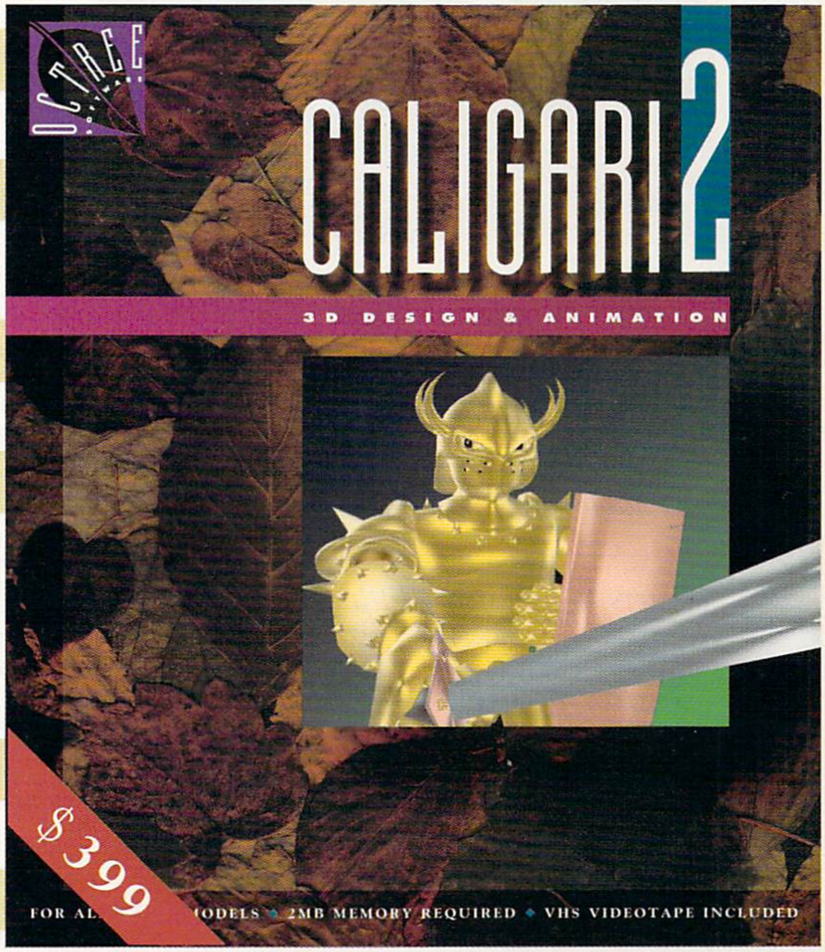
Caligari does not include Boolean operations (using one object to cut away another), but you can subdivide and separate objects. You can cut holes in objects in this way, but it may take more design time. While you can enter exact values for point and object positions or use a definable grid, Caligari is

Continued on p. 62.

REALITY REFINED

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■ The world's best modeler using virtual reality technology for direct real time manipulation of 3D objects in full perspective ■ Single Point Editor, full hierarchies, Primitives, Extruder, Mirror, Slice and Sweep tools ■ Photorealistic full color renderer with texture mapping, environment mapping, shadows, transparency, Gouraud, Phong, Metal and Environmental shaders ■ Four levels of antialiasing, with separate antialiasing of textures, unlimited number of lights, including Global, Local and Directional lights ■ 20 to 50 times faster than ray tracing programs ■ Full color output to HAM, HAME and DCTV frame buffers ■ Interactive spline based animation with real time preview ■ Fully compatible with Videoscape, LightWave and Sculpt 4D object formats ■ Runs on all Amiga models (2Mb memory required) ■ Support for 68030/040 accelerators ■ Full implementation of Caligari Broadcast 2.0 technology.





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Circle 82 on Reader Service card.



O Say

With the release of new CD-ROM-oriented peripherals, Commodore will enable both Amiga 500 and CDTV owners to perform a little "quick-change" artistry on their equipment. The A570 CDTV Adapter (right) enables you to add CDTV/CD-ROM capability to your A500, while new CDTV peripherals (above) can turn your CDTV into a fully functional Amiga 500.

By Lou Wallace and Doug Barney

While CDTV may not yet be universally popular, Commodore is waving the CD-ROM flag in front of A500 owners—who might now just sit up and take notice. In the past, although Amiga users may have looked upon CDTV as an intriguing multimedia CD-ROM system, most of them probably already had one or more Amigas and didn't need to buy another computer.

Recognizing this fact, ***Commodore*** has come up with what appears to be an economical solution in the form of its new **A570 CDTV Adapter**, which will enable A500 owners to add CDTV compatibility to their existing machines by plugging the A570 into the A500's expansion port.

On the other side of the CD-ROM battle lines, the company is also releasing an assortment of Amiga peripherals—keyboard, floppy-disk drive, mouse, plus some extras—to enable CDTV owners to use the player as an Amiga 500 (see "'Computing' With CDTV" further on in this article for more on that development).

The A570 is in essence an A500 expansion chassis. And while its main function is to add a CDTV-compatible CD-ROM drive to the A500, it can also be used for other types of upgrades: as a RAM expander, as a SCSI hard-disk adapter, and as a standard audio CD player.

To use the A570, you need an A500 with at least one megabyte of chip RAM. While you may be able to use some CDTV software on a system equipped with less RAM, the number of titles that will run properly with 512K will be small. All CDTVs have exactly 1MB of RAM, all chip, and most CDTV developers usually take full advantage of it.

Installing the A570 is easy. With the power off on all devices, simply remove the cover of the expansion port on the left side of your A500 and gently slide the A570 into place. Connect your Amiga audio cables from the CPU into the audio-in jacks of the A570, then run new audio cables from the A570 to your audio system, and reconnect your power cords.

To run CDTV software, merely insert a CDTV CD-ROM disc into the supplied disc caddy (a small case used to hold the disc while inside the player) and ►

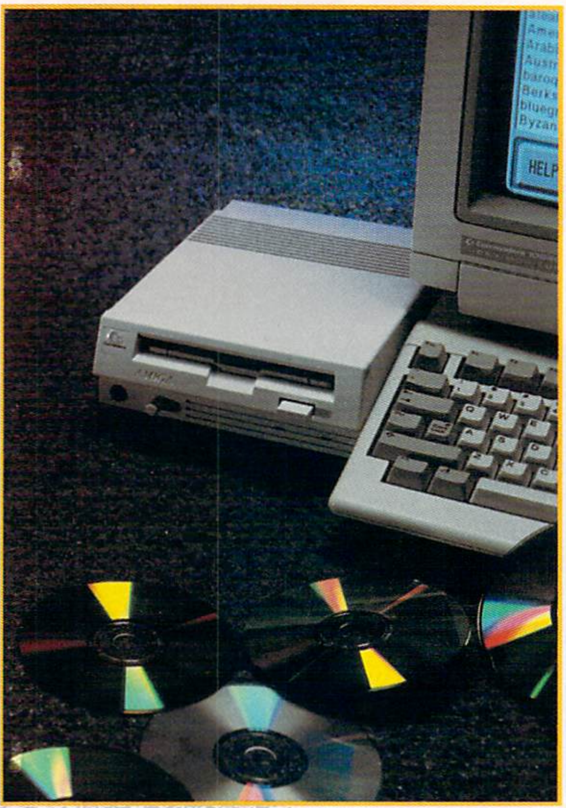
EDITOR'S NOTE: Just as this issue was about to go to press,* AmigaWorld *learned that Commodore officials were expressing some doubts about the scheduled release of the A570 this summer and about its suggested retail price of $499.99.* AW *will bring you further details in the August issue.

PHOTOGRAPH BY ED JUDICE

Can You CD?



PHOTOGRAPHED BY CHARLES BARTHOLOMEW





The headphone jack and volume control on the A570's front panel let you listen to audio CDs while working at your computer.



The route to A570 expansion is through the rear panel to the left of the audio jacks.

slide the caddy into the A570. Depending on how the software was written, you then either reboot your machine or start the program from Workbench by clicking on its icon. (While most current CDTV titles must be booted by a soft reset, many of the newer titles under development will allow program startup via an icon.)

The A570 does not contain all the standard operational devices of a CDTV. For example, you do not get an infrared remote controller with it. Nor is there any option for the credit-card-like RAM cards (PIM cards) you can install inside a CDTV player. In most cases, however, you don't need these. The remote control is made unnecessary because all A500 owners have both a mouse and a keyboard that emulate all the CDTV remote functions and, in many cases, work better than the standard remote control. Those applications that need a PIM card when used with CDTV can use the standard floppy drive for storing information.

Because the A570 is designed to fully implement a CDTV (in terms of its software operation), special care had to be taken to emulate all aspects of the CDTV operation. This goes well beyond such considerations as the controller and PIM cards, as it includes software compatibility for such CDTV-specific features as CDXL. Because CDXL is the software magic that allows sophisticated CDTV applications to play animations and digitized video directly from CD-ROM, this was an important developmental factor and represents no mean achievement. (For more on CDXL, see the sidebar "CDTV: Technology on the Brink.")

For software that is meant to be accessed via Workbench (or the Shell/CLI), the A570 CD-ROM has the drive definition of CD0:. You can copy files from CD0: to either floppies or hard disks (since the CD is a read-only device, you cannot write data to it). Because the A570 is so easily accessed as a standard drive, you can look forward to using a variety of CD-ROM discs that contain very large (more than 600MB!) amounts of data. There are already CD-ROM sources for the Fred Fish disk collection of freely distributable software, and I expect many more resource CDs to become available.

Imagine the possibilities those 600+ megabytes of storage represent for clip art, fonts, 24-bit texture maps, and 3-D models for animators. As an added bonus, you can use a variety of existing CD-ROMs that are available to MS-DOS and Mac users. (See "Plunging Into CD-ROM," Mar. '92, p. 49, for a survey of CD-ROM titles and sources available to Amiga users.)

Expansion Possibilities—and Caveats

As mentioned previously, the A570 offers expansion possibilities beyond just the built-in CD-ROM drive. The prototype I examined allowed for 2MB of RAM to be added within the A570 itself. The A570 also provides for hard-disk expansion. While space within the case is somewhat limited, you can install a small, 2.5-inch hard drive similar to those found in laptop or notebook computers. (I was surprised, however, to discover that the interface is SCSI rather than the expected IDE format used by laptops.)

Like the CDTV player itself, you can use the A570 as a standard audio CD player. And also like that unit, the A570 includes a built-in, software-based graphic audio-control screen. The front panel of the A570 has a headphone jack and a volume control (for use with the headphones), so you can enjoy your favorite music while still

CDTV: *Technology on the Brink*

WHILE MUCH OF the focus of the CD-ROM wars has been on hardware, the real significance of this technology lies in the applications that it opens up to users. And although there are a great many CDTV titles already shipping, some of these could easily be referred to as "shovelware," a term applied to software that was quickly ported to CDTV

While ported software can be quite enjoyable in its own right, it usually does not take advantage of special CDTV features such as CDXL. (Editor's Note: For a roundup of many of the earlier CDTV titles, see the buyer's guide accompanying "CDTV: Birth of a Notion." Jun. '91, p. 20.)

We are now seeing, however, the arrival of a second generation of titles that do capitalize on the full potential of CDTV. One example is Icom Simulations' Sherlock Holmes, Consulting Detective (see illustration). This is a full-blown adventure/detective game that features high-quality digitized video, a fully synced audio track, and an elegant and effective user interface.

As Sherlock Holmes, you choose one of three different cases that are on the disk, and, along with Dr. Watson and the Baker Street boys, you proceed to find the solution to the mystery and bring the perpetrator to justice. You can find clues in the game's "newspaper," in any of the many places you can visit, and from a wide assortment of people or organizations you can choose to interrogate. These discussion sequences are actually digitized video, created with well-decorated sets and real actors, many of whom appear to be be extremely good at their trade! The overall effect is excellent.

The ability to play full-motion video (even quarter screen) and sound from a CD-ROM in real time is quite an accomplishment, especially since it is being done on a 1MB Amiga 500 (which is, of course, the power within the CDTV). This success is partially due to the overall graphic power of the Amiga itself, but much of it also stems from the programming genius behind CDXL—the proprietary software used to transfer any kind of data from the CD-ROM into the computer at speeds faster than



Icom's Sherlock Holmes is an example of the promising second generation of CDTV titles.

one would expect from the hardware specifications.

The creator of CDXL, as well as a lot of other CDTV code, is Carl Sassanrath, one of the Amiga pioneers and author of the Exec—the heart of multitasking in the Amiga OS.

For developers, using CDXL, as well as other CDTV features, has been made easier through the creation of a new generation of software tools. CBM's CATS (Commodore Applications Technical Support) department, working both internally and with third parties, has developed an entirely new range of tools to facilitate CDTV application generation. Besides CDXL and the CDTV Toolkit (distributed by CATS), the group has helped to develop a new module for ASDG's Art Department Professional that allows the creation of CDXL sequences from within AD Pro.

Look for some exciting and technologically impressive new CDTV titles to begin appearing over the next several months. This is just the "dawn's early light" of what could be a star-spangled revolution in applications development. *—LW* □

making full use of your Amiga. As is the case with CDTV, the A570 also plays CD+G audio discs.

There is one major drawback, however, to using the A570 with the A500. For 500 owners who have already added an external expansion chassis but want the A570's CD-ROM capability, there is no easy solution. The A570 does not offer a pass-through connector, which is not surprising, as Commodore specifically designed the A500 so that only one expansion device could be added to its bus. There is only one remedy for this dilemma: If you want to add the A570, you will have to remove your existing expansion chassis (and hopefully sell it to another A500 owner).

Another possible source of incompatibility may affect users who have added internal accelerators. Commodore reports that the A570 should work in such cases, but be aware that some CDTV titles may not support advanced processors such as the 68030 or 68040.

Despite such potential problems, it appears that a workable CD-ROM solution is finally available to the Amiga consumer. Is it worth it? I think the answer is a strong yes. With a planned release price of $500, the A570 compares fairly well with external CD-ROM drives for the MS-DOS and Mac markets, and it offers the additional option of RAM and hard-disk expansion. More importantly, it will open the floodgates for the type of multimedia applications that require the huge storage that CD-ROM can provide.

—Lou Wallace ►

'COMPUTING' WITH CDTV

DURING THE FIRST year or so after Commodore began shipping it, the company took great pains to position CDTV as an interactive home-electronics device, not an Amiga computer. The arrival of Philip's CD-I, with no computer capabilities, has helped to change all that. Commodore now proudly extols CDTV's Amiga virtues as an advantage over CD-I. I tend to agree.

Nowhere is this strategy more clear than with the new CDTV/P ("P" for "Professional"), a special version of CDTV that includes a keyboard, infrared mouse, floppy drive, Workbench 1.3, and Gold Disk's Appetizer—a selection of paint, music, and word-processing titles on one disk. The complete package is available now at a special promotional price of $849.

Setting Up Shop

We received the additional items in the form of a Pro Pack upgrade kit (due to retail at $249.99, but available now at a special promotional price of $199.99) for our own CDTV unit. The keyboard is identical to the fine unit that comes with the A3000, except that it is jet black (in the CDTV style) and has a different, six-pin plug configuration. (An adapter is in development, but is not yet available commercially.) Like most keyboards, it plugs quite easily into the back of the system. The disk drive, also black, uses a standard floppy connector.

Unfortunately, the drive has no pass-through connector, unacceptably limiting the system to a single floppy. I did, however, scare up a low-profile drive with a pass-through from California Access and quickly set up a dual-floppy system. Activating the infrared mouse, as you might expect, is a breeze. Simply load the batteries and click the On button on the left side.

Setting up the whole system took all of about ten minutes, including the installation of an optional 64K personal memory card. (The 64K Flash Memory Card sells for $129.99, while a 256K version is available for $349.99.) I also plugged in a 1084S monitor we had lying around and used it for both RGB output and stereo sound. This is a nice, simple approach, and the system performed quite well.

Running CDTV as an A500

Once I had plugged in all the components, I flipped on the power, and up came the familiar CDTV animated logo. That wasn't what I wanted, so I rebooted with Workbench 1.3 (Kickstart is included in ROM as on the A500). The screen turned the familiar basic blue, and Workbench struggled to life. I popped in the Appetizer, went into the music program, and fiddled about. Everything worked fine.

The system comes with 1MB of chip RAM, which was adequate for many of the simpler programs I ran. Because it has no fast RAM, however, some of the games I tried that use fast RAM were a bit flaky. Most, however, worked just fine. I also ran into an unexpected guru when exiting Appetizer, but *AW*'s Lou Wallace, who has a similar setup at home, reports that his system is as stable as they come.

You can also make use of the upgrade kit when you are running CDTV applications. In particular, I found the mouse to be a lot snappier than the CDTV remote's four-arrow cursor system, and,fortunately, many CDTV applications fully support mouse input. Remember, though, that you must keep the mouse in front of the unit in order for the infrared to work properly. When you are operating it as a computer, this is generally where the keyboard sits, which forced me to move the keyboard somewhat off to the left. As an alternative input device, Commodore also supplies an optional trackball for $129.99.

Reversing the situation, you can also use CDTV features for Amiga applications. For example, CDTV's remote acts like a mouse, allowing you to play some games or run simple applications from your couch. The remote's number pad works for numeric input, but unfortunately has no keyboard for letters.

One small fly in the CDTV/P ointment is that the integration of CDTV and Workbench is not fully complete. For instance, when you run Workbench, CDTV applications post the usual icons, and when you double-click on them, drawers appear. In some cases, however, when you try to open a drawer, the system freezes. As a result, you cannot boot these CDTV applications from Workbench. Of course, since CDTV applications load (and unload) so effortlessly, there is no real reason to launch from Workbench. According to Commodore, however, the company is encouraging developers to support the Amiga operational style in designing future CDTV applications.

What's the Verdict?

Overall, CDTV/P is a bit of a mixed bag. It was a pleasant surprise to find that the remote could act as a mouse and to discover other pluses, such as being able to use the standard floppy connector and having RGB video, serial, and parallel ports. I could not understand, however, why the keyboard connector was nonstandard and why it failed to have the standard mouse and joystick ports that would allow many of us with spare parts to upgrade at little or no cost.

Although not as expandable as an A500, you can provide CDTV/P with some added oomph. For instance, it has an expansion slot into which you can put a SCSI interface card (which is presently in development at Commodore), or you can add a hard card with a 2.5-inch hard drive. In addition, to increase your chip RAM to 2MB, you can add DKB's MegAChip 2000/500 ($299.95). Acceleration products are also in development, including a 68040 plug-in from Progressive Peripherals!

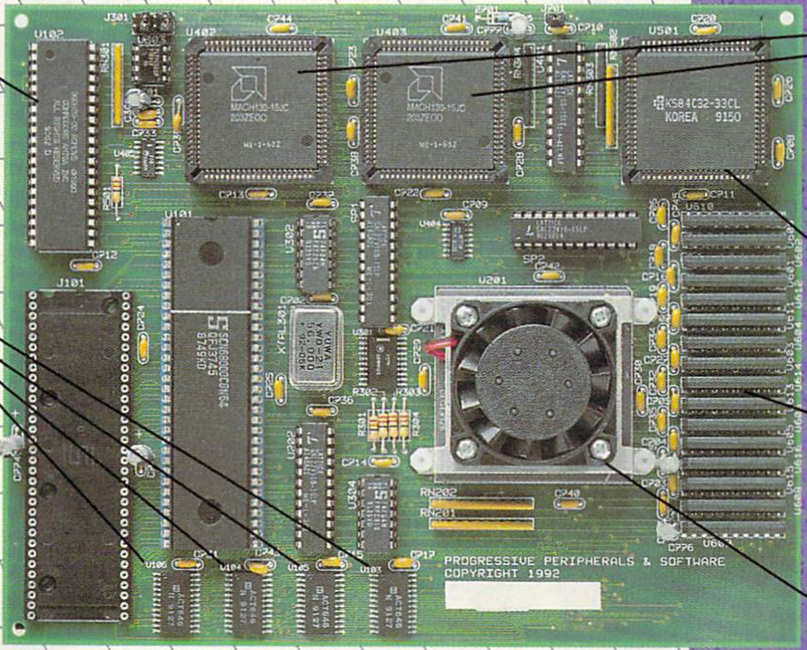
Many common items plug right in with no fuss, such as MIDI keyboards, printers, modems, and genlocks. (Progressive's miniGEN—$229.95—works fine, while Commodore is offering a special genlock for the unit at $249.99.)

If you are already considering CDTV, the Professional version or the Pro Pack upgrade kit isn't a bad way to go. You end up with a basic A500 for just a few extra bucks, and you qualify for Commodore's excellent Express warranty service. I would, however, strongly recommend plugging the black floppy drive into another one that has a pass-through connection in order to get two floppies.

—Doug Barney ■

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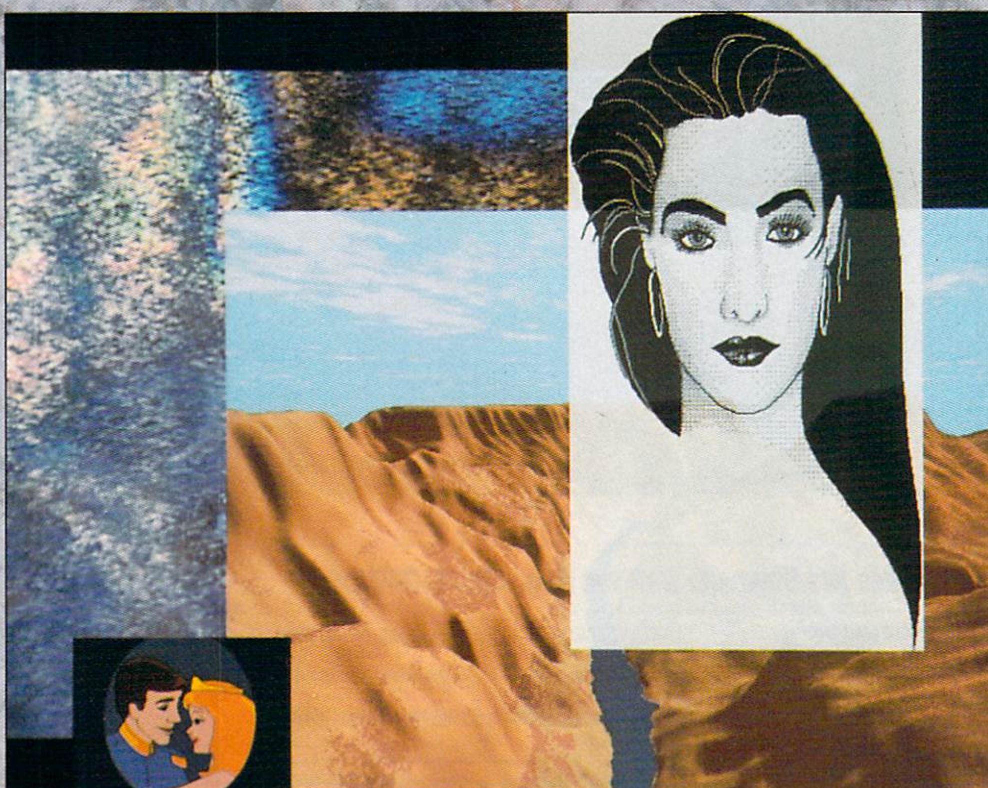
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ART IN AN INSTANT

(Just Add Applications!)



Why start from scratch when you can get a jump on your productions with "instant art?" Clip art, backgrounds, and animations—both 2-D and 3-D—can save you time and aggravation. Let's take a look at the best available in eight categories.

MARBLE PATTERN ©H.D. THOREAU/WEST LIGHT

BY GEOFFREY WILLIAMS

WHEN I DRAW a rabbit, people think it's a horse. Nevertheless, the work I do often requires illustration. Even if you can draw a respectable horse, have a digitizer to create backgrounds, and can adeptly produce realistic 3-D models, you may not have the time to do so—or the inclination.

Given the legions of clip-art available for every purpose, creating original art is sometimes a poor use of time. Today, clip art comes in all types of formats, from bitmapped black-and-white to 24-bit 3-D. Some packages even let you easily generate your own original backgrounds—from simple repeating patterns to highly realistic scenery. Best of all, when you use a generator or a clip-art package, you know you are clear of copyright infringement.

So that you could get an overview of the expansive array available, I looked at all the packages I could get my hands on—more than 70 in all (though I'm sure I missed some). Although many applications programs (such as Gold Disk's ShowMaker and Oxxi's Presentation Master) come with great amounts of clip art, I have limited this discussion to stand-alone clip-art collections, figuring that you are not likely to buy an application just for its clips. Also, while you may find a couple of packages here that provide fonts along with clips, I avoided those that contain primarily fonts. The field of fonts is at least as extensive as that of clip art, so we'll leave fonts for another issue.

In evaluating the packages, I placed each in one of nine categories. Then I considered its overall usefulness and the quality of its art, and gave it a rating of one to five. To keep the list to a manageable size, I excluded collections that rated lower than three stars. Some two-star packages were not necessarily bad, but I felt that others in the same category were better. If possible, it's a good idea to make your own judgments by viewing clips at your local dealer before buying.

While this approach necessarily involves my personal judgment, I balanced my calls by seeking opinions from other qualified users. These listings should give you a good foundation for looking at clip art, and the descriptions offer criteria for evaluating future releases.

(To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on page 100.)

BLACK-AND-WHITE CLIP ART

Pic Magic ($99.95)
Joe's First Company
*****

Pic Magic is a set of ten disks, each of which focuses on a subject such as food, sports, transportation, people, plants, animals, and places. There are over 20 illustrations on each disk. All are super-bitmaps, which means they will remain good looking when you scale them down for printing. There is a lot of variety, and the art work is well drawn. A printed guide would help greatly, though.

Classic Clip-Art; People Clip-Art
($79.95 each)
Softwood
*****

These two volumes contain hundreds of well-drawn illustrations by DUBL-CLiCK Software. Originally released on the Macintosh, these highly respected collections contain an excellent variety of art. Most of the individual images are saved as brushes, and because they are smaller than the images in Pic Magic, more of them fit on a disk. Even consid- ►

ering the slight trade-off in print quality, this product is top-of-the-line. The package includes an excellent hardcopy image directory.

Floor Plan Library ($89.95 and $129.95)
Madrigal
****

While its use is limited to floor-plan



Joe's First Company gives it to you in black and white.

design, the Floor Plan Library gives you all the basics, from fireplaces and stairs to complete rooms. In addition to over 200 parts and an interior-design kit with furniture, there is a well-organized printed guide to help you find what you need. IFF and DXF/Draw 2000 formats available.



Video Libraries ($39.95 each)
Multimedia Graphics Libraries ($49.95 each)
Digital Designs Group
*****

Here are several collections, some designed for video, others for multimedia. Besides great clip art—obviously created with attention to detail—you get many useful extras. For instance, the background images come with "magic palettes," which you can load either from the Palette Menu in DeluxePaint IV or directly with a picture in DeluxePaint III. The latter option lets you alter only the palette and not the current picture.

Some backgrounds are designed especially for use with DPaint's Shade function to create drop shadows. A hot-key-activated presentation program lets you cut or fade to an image, keeps images in memory for instant access, and allows an endless number of key combinations to trigger changes.

I looked at Video Backgrounds A and B, each of which provide four disks of useful, well-designed, 704×480 text backgrounds, most with two or three colors left for text. Packages A and B offer a combined total of over 200 magic palettes, which are designed to be video-color safe.

The four-disk Worldwide Maps collection gives you over 185 various-style maps of countries and US states, plus a weather-map kit. A follow-up set, More Worldwide Maps, provides 213 images, including globe and embossed maps.

Earth and Planets offers both fantasy and digitized imagery for a total of 63 animations, drawings, and pictures, while Galaxies and Other Worlds includes 60 images of galaxies, many of them digitized.

Lunar Construction Kit ($24.95)
Silver Fox Software/INOVAtronics
****

This two-disk set contains nicely drawn lo-res clip art, all sharing the same palette, for creating lunar landscapes and space scenes. There are asteroids, craters, mountains, planets, spacecraft, interiors (including doors and control panels), and ANIM brushes of flame trails and explosions. I had a lot of fun playing with this set.

Automotive Construction Set ($59.95 and $229.95)
Madrigal
****

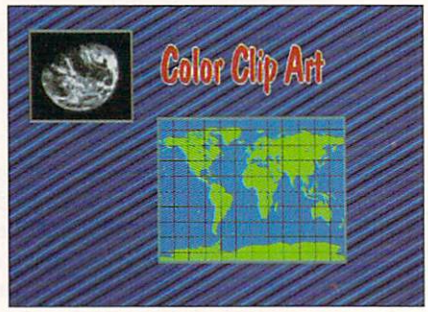
Need wheels? Here is a four-disk set of over 45 makes of domestic and foreign cars, along with trucks and tanks, engine parts, seats, tires, and roofs. All the images are drawn to scale, and you can use them as is or as models for illustration. They are well suited for publishing because of their fine detail. IFF and DXF/Draw 2000 versions available.

General Volume I; Animals Volume III ($29.95 each)
Software Designs
****

Software Designs has tried to vary the color palettes of these hi-res clips as little as possible so that you can easily combine images. Many clips in the General volume are small, and thus better suited for printing and multimedia than for video. You get a good variety amongst the 200 images in Birthday, Amiga, Holidays, Food, Money, Music, Office, Symbols, Sports, Signs, and Weather categories. The Animals volume has 80 pictures that are fine for video. Both volumes come with printed image catalogs.

Comic Art ($34.95 each set)
Gold Disk
****

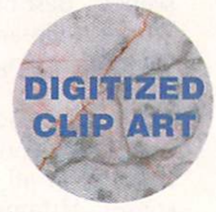
In three collections—Science Fiction, Super Heroes, and Funny Figures—Gold Disk captures comic-book style with well-drawn lo-res images that have the right feel. Each two-disk set includes many parts, such as arms, torsos, and



Digital Designs gives you great color clips—and more.

legs, to let you create a variety of character poses.

Also included are props and backgrounds, all with compatible color palettes that make it easy to compose a scene. (But…where are the women super heroes?)



Video and Multimedia Graphics Libraries
Digital Designs Group
*****

This group includes several collections of digitized imagery. Both Scenery Backgrounds ($39.95, 29 images plus brushes) and Nature Backgrounds ($39.95, 31 images) are four-disk sets of hi-res, 11- to 14-color overscan scenics.

The Scenery set ($39.95) includes buildings, harbors, and boats, while the Nature collection ($39.95) offers mountains, flowers, sunrises, and so on.

Birds in Nature ($49.95) includes 30 images of various birds in overscan 352×480 HAM, while Birds Up Close ($39.95) gives you 22 interlaced and 20 hi-res birds in overscan.

The image quality is amazing, considering the number of colors used. Some have a painted rather than photorealistic feel, but they look clean and sharp. If you need this type of imagery, this is your best source.

Space Visions ($90)
Virtual Reality Laboratories
****

This is a 25-disk collection of 640×400 hi-res images of everything from galaxies to skylab. There are 246 images, covering almost anything you might need that has to do with space.

Autumn Colors ($39.95)
Images of Japan ($34.95)
GlassCanvas
***

Autumn Colors offers 23 digitized leaves in interlaced HAM using the same base palette. The images are good-looking and provide lots of variety.

The Images of Japan set was digitized



GlassCanvas' Autumn Colors "leaves" digitizing dilemmas behind.

from 35mm slides. There are many distinctly Japanese scenes amongst the 15, including flowers, pagodas, and a Buddha, all of which look good in 320×400 interlaced HAM. (Images of Hawaii, a collection in 320×200 noninterlaced HAM by the same company, is not nearly as good.) The sets include nice slideshow presentations of the images.

Vermont Seasons ($39.95 per season)
Eyeful Tower Communications
***

While these images are in non-interlaced HAM format, they hold up pretty well, and have a soft, almost painted look. The display is about as good as this resolution allows. The 36 images in each set comprise a nice variety of scenes—barns, woods, wildflowers, and streams.



Pixel Perfect 24 ($399.95)
Digital Designs Group
*****

The Pixel Perfect collection was not quite finalized when I inspected it, but I saw enough of the 150-odd images to be very impressed. A good 24-bit image has a lot of color depth, looks crisp and sharp, and has high contrast and clean definition. It also exhibits smooth gradations without color banding. These images have all that, and they constitute a



Rev up your resolution with AirStream's 24-bit clips.

very good selection of useful imagery (including both scenics and video backdrops for overlaying text).

The inherently large 24-bit files are compressed with JPEG, which is directly supported by programs such as Art Department Professional 2.0 (ASDG) and Image Master (Black Belt Systems). Compressed with JPEG's lowest level, the images show virtually no color distortion.

A JPEG decompressor is scheduled for inclusion in the package, and Digital Designs promises to ship the collection image-processed for video use. The set is also available in uncompressed form on Syquest.

Backgrounds ($50)
Airstream Graphics
****

This ten-disk collection contains good-looking, well-composed valley, cliff, delta, desert, tree, swamp, mountain, seashore, forest and stream images. Instead of JPEG, Airstream uses an awkward CLI-based decompression scheme requiring you to decompress nonDOS disks into an LHARC file, which you then decompress into the image. Too bad—you'll wind up using JPEG on the files anyway in order to fit them on disk.

Our Wedding ($69.95 or $89.95)
Digital Graphics Library
***

This is worth a look for wedding videos. Many of the 25 images are very nice, although the fine detail of some embossed images does not hold up well in video. Available in HAM and IFF24 formats.



Texture City Pro 60 ($299.95)
Texture City
*****

This is a collection of 60 clean, sharp, real-world images. (Different versions give you more or fewer.) You can use them either for video backgrounds or for wrapping 3-D objects to impart a realistic look. You get a few scenics, but a greater



Texture City's versatile collection comes in many forms.

variety of textures, including textiles, animal skins and furs, sand, and foliage.

The images come in HAM, DCTV, and 24-bit formats. I evaluated the latter version, which I found to be video-color safe and in full Toaster-2.0 resolution. The 24-bit images are JPEG compressed, and that version includes a decompressor.

The set is available on floppy disk or on CD-ROM, which supplies a full 100 images, each in Targa, IFF-24, TIFF, and PCX formats.

ImageCatalog ($99)
Robert Young
****

A nice selection of 736×480 24-bit textures (29 in all), including marble, stone, and wood. While the images show slight fuzziness—a typical artifact of JPEG compression—the problem is minor. The set is available in GIF and TIFF formats, as well as in IFF-24.

Material Texture Library ($49.95 per volume)
MicroSearch
****

For HAM images, these three volumes—Stone, Wood, and Tiles—are impressive. Tiles images are 480×480; the rest measure 736×482. Each collection ►

provides five disks of four selections each, including Workbench 2.0-compatible, 16-shade gray-scale icons for all. The manual provides a guide to the images.

Map Master ($99.95 and $69.95)
Surface Master (Price not available)
Computer Imagery
****

Map Master is a collection of 14 hi-res, scanned, gray-scale images of organic elements such as cells, bubbles, bumps and thorns. It comes in versions for LightWave and Imagine. Included is a very useful Director-based program that lets you see renderings of how the various textures look as bump maps on spheres when you use different settings.

Surface Master is similar, but it attempts to teach you Imagine's surface capabilities and includes many preset surface settings you can work with.

Pro Textures ($69.95)
Merlin's Software/Amazing Computers
***

Brick, flagstone, marble, clouds, water, rock, and gold are all included in this package—in both HAM and 736×480 24-bit format. These textures are designed to wrap seamlessly around objects, with opposite edges matching up. The images are useful, but look somewhat washed out.

ANIMATED CLIP ART

Animattes: Wedding Series ($39.95)
Electric Crayon Studios
*****

This collection is sophisticated and stylish, in classy subdued hues that are video safe. Designed to be keyed over video, it includes clinking glasses that splash into color 0, bells, love birds, an opening book, a glass heart, and several others on a three-disk set.

Running the animations from the included Director scripts can trigger wipes and dissolves from the keyboard. A very useful and well-constructed collection.

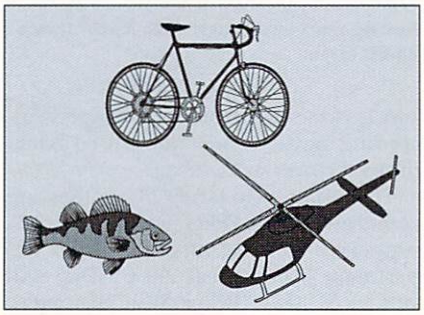
Fairy Tale Wedding Opening ($149.99)
FireWorks Construction Kit ($49.99)
InSync Digital Corporation
*****

The 12-disk Fairy Tale Wedding set includes one animation spanning six disks. An animated marquee segues to a movie theatre where the curtain rises on a castle to which a cupid flies. Inside, the prince proposes to the princess and they kiss while fireworks fly in the background. You can use the ANIM either as a whole or in pieces.

Among the shorter offerings are a cur-



Flying was never easier than with animated clip art.



Artistic clips are structured clips.

tain rising to color 0, a champagne toast, and segments for "Best of Luck" and "Sweet 16." All the animation is nicely done and very usable, although the Director scripts designed to make starting and stopping easier do not operate under Workbench 2.0.

The Fireworks Construction Kit provides 36 animbrushes, with sparkles, sprays, bursts, rocket trails, super clusters, and heart clusters, as well as one full-disk animation of fireworks blasts.

Starfields ($59.95)
Kara Computer Graphics
*****

The Starfields collection comprises front, side, and oblique views of animated starfields, in both 2- and 16-color versions. Also included in the package are animbrushes of a satellite, a spinning asteroid, a rotating Earth with clouds, and a flying comet. If you can resist the temptation to use starfields in every video, this is great.

Video Clipse ($99.95)
Graphically Speaking
***

This collection includes Toaster, large Amiga, and clip-art fonts, in addition to 16-color texture backgrounds and animations. In the latter group are a starfield, a count down, rippling water in full-screen format, brush-size sparkles, a filmstrip, and a spinning globe. Beware, though; some of the animbrush palettes are not video safe.

STRUCTURED CLIP ART

Structured Clip Art ($59.95)
Gold Disk
*****

This collection of 145 full-color ProDraw Clips comes with a full-color poster showing all of the clips. It also includes a utility to scale and convert clips into bitmaps for use in paint programs. Categories include symbols, travel, food, music, signs, events, maps, and business.

Artistic Clips 1 ($44.95)
Artistic Software
****

With only 46 clips, your choices are somewhat limited in this color collection, but most of the images are well drawn. Of special interest are the jets, helicopter, and submarine.

Super Clips 1 and 2 (price not available)
King Publishing
***

Each of these collections has a little over 50 gray-scale images. Although IFF-format representations are provided, there is no printed guide—which you need to see what the images actually look like. The art is fairly well drawn, but there should be a wider range of images. Volume 1 covers domestic, plants, borders, transport, and symbols categories. Volume 2 is more business oriented, with credit cards, dots, equipment, industrial images, and "attention getters."

3-D CLIP ART

3-D Objects ($129.95)
Impulse
*****

Impulse's superlative collection of 17 detailed, 3-D digitized objects for Imag- ►

Welcome to the Future.

Soft-Logik would like to congratulate Gold Disk on adding features to Pro Page 3.0. Of course, it still doesn't compare to PageStream 2.2, the Experts' Choice.



Congratulations, Gold Disk, on adding improved typographic precision and an Undo option to Professional Page 3.0. Of course, PageStream has had Undo since version 1.0 and its type scaling is still 12.5 times more precise. The five new AGFA Compugraphic fonts included in ProPage 3.0 bring your total to 7, still short of the 10 we give our users.

We're sure ProPage users will appreciate the new ProWrite and Excellence text import filters; PageStream users have been enjoying them for years. And the tiling feature you've added in 3.0 will allow your users to make those banners and posters PageStream users have been pasting on walls everywhere.

The most impressive feature in 3.0 has to be the links to ProDraw and Article Editor. Your "hotlinking" feature is a closed and proprietary system. Our HotLinks is a standard protocol which any company can support. Of course, this isn't really a fair comparison, because ProPage's links cannot match HotLinks' automatic data transfer, real-time multiple edition updating, and edition management utilities.

Cool Programs for a Hot Computer

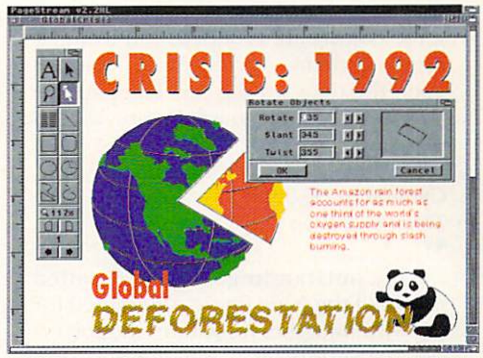
Soft-Logik Publishing is proud to announce HotLinks Editions. HotLinks Editions combines BME, PageLiner and HotLinks into an affordable package. BME is a bitmap editor for touching up pictures and photographs. PageLiner is a feature-laden text processor with spell checking and formatting tags. HotLinks is the new Amiga standard for data exchange.

Multitasking is Cool, but HotLinks is Hot

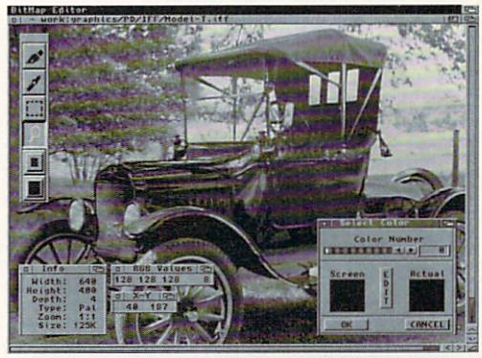
HotLinks takes Amiga multitasking into the future. An open standard available to all companies, it allows you to exchange text, graphics and other data between applications in real-time. Imagine having all copies of your corporate logo updated automatically in your PageStream document when you make changes in BME. PageStream doesn't even have to be loaded. The next time you load a document containing a copy of the logo, HotLinks will update it automatically.

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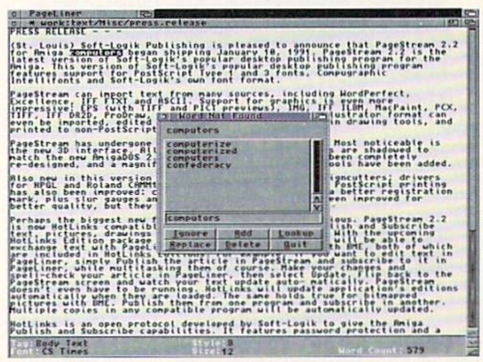
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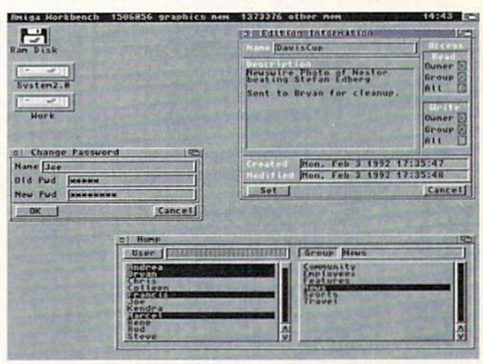
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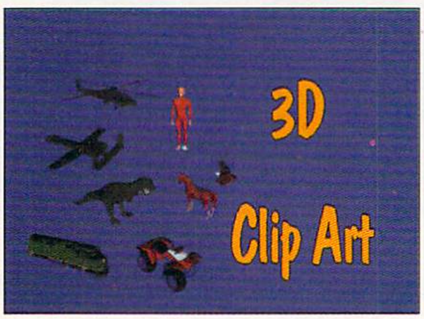
Circle 46 on Reader Service card.

ine is the first in a proposed series of sets. This one includes cars, trucks, jets, an Apache helicopter, the U.S.S. Nimitz, a dinosaur, a man, and more. Because some objects are grouped, you can manipulate them—for example, you can open the door on the car. The package includes a browser to let you preview the images.

CycleMan ($59.95)
Timothy Wilson
*****

This outstanding, highly detailed model of the male figure is designed for use with Imagine. It includes motion cycles for very realistic walking and running, and allows you tremendous control over the figure—you can even make him blink or bend a finger. A manual explains the capabilities.

MotionMan, a version with motion scripts for LightWave 3D, should be available from Anti Gravity Workshop (310/393-6650) by the time you read this.



Impulse's collection takes you into another dimension.

The Big Rig ($49.95)
Mach Universe Productions
*****

This LightWave object is an accurately scaled model of a tractor rig, complete with cab, trailer, wheels, running lights, and mirrors. You can load the assembly in pieces or in total, ready to animate. The set includes suggested motion paths and texture maps, plus complete on-disk instructions.

BisClips ($49.95)
Animatics
***

Nearly 100 objects make up this LightWave collection. Several are set up for morphing, and many have movable parts. These objects are designed, however, for use in backgrounds where a less realistic look is in order. They are not scaled and are less detailed than others in this category.

While the collection emphasizes religious objects, a camcorder, gems, and other objects are included. Complete instructions are on the disk.



Vista Pro 2.0 ($99.95)
Virtual Reality Laboratories
*****

Vista and other "generators" make it easy for anyone without artistic ability to produce great-looking custom backgrounds. Vista Pro and Scenery Animator are similar—and terrific. Both of these programs create still images and animations in IFF, DCTV, or 24-bit format. These can be imaginary landscapes generated by fractals, or realistic depictions of actual landscapes based on DEM data files. (You can purchase dozens of DEM files—of the Grand Canyon, California, the surface of Mars, and more.) You have complete control of lighting, and can add snow, rivers, lakes, trees, and so on.

Vista Pro alone, however, has the ability to save landscapes as objects for use in 3-D software, and to generate stars, buildings, and roads.

Scenery Animator 2.0 ($99.95)
Natural Graphics
*****

Unlike Vista Pro, Scenery Animator lets you animate its clouds and provides trees that look better at close range. Like Vista, it can churn out stunning stills and animations.

ProFills ($49.95)
JEK Graphics
*****

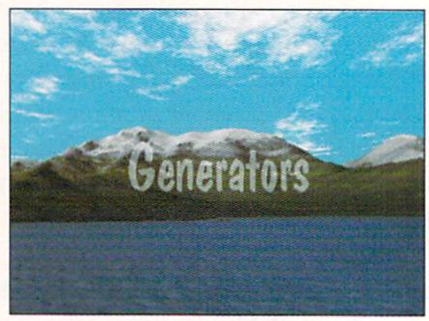
ProFills' screen generator creates backgrounds in any resolution—with a choice of ten textures and over 50 patterns in hi-res and interlace—using your choice of 30 RGB or 30 composite (video colorsafe) palettes. It is fast, compatible with Colorfonts, and multitasks well. It gives very professional results.

VidGen 2.0 ($149.95)
Microft
*****

Much improved over the original, this updated background generator creates repeating patterns from brushes, with adjustable spacing and color. It can quickly and easily impart an embossed look, add drop shadows, or produce shaded backdrops. Best of all, it can scroll continuously in any direction, even diagonally.

Fractal Pro 5.1 ($149.95)
CellPro ($89.95)
ScapeMaker ($39.95)
MegageM
****

Although their interfaces are a little awkward, these are great programs, offering some amazing capabilities. Fractal Pro produces fractal images based on Mandelbrot, Julia, and six other mathematical sets. It produces images in interlaced HAM and in 24-bit format, and can render directly to Impulse's Firecracker24. You can create animated pans, zooms, tweens from one image to another, and Julia-set cascades between two Mandelbrot sets. Unlike version 4.0, Fractal Pro 5.0 and 5.1 require an accelerator with a floating-point processor.



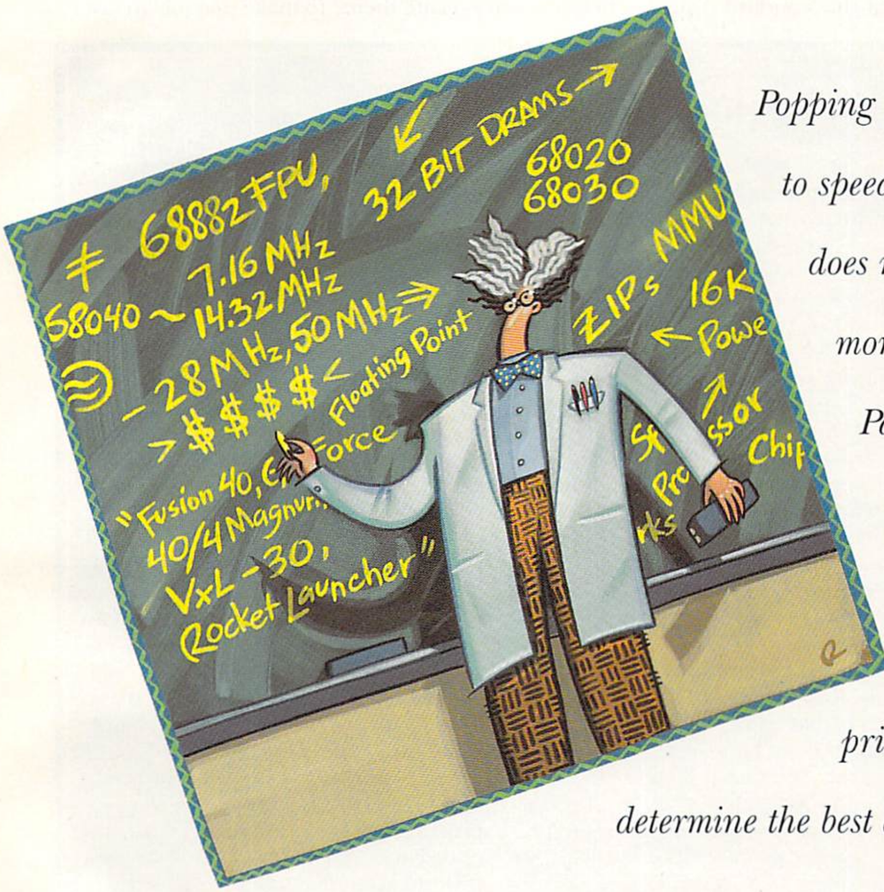
Generators such as Scenery Animator let you create your own ground.

CellPro generates images and animations based on cellular automata (CA), best known through John Conway's Life program. CellPro provides many different types of CA and ways to manipulate them. You can use an IFF picture as a seed, and create an animation of it changing and swirling into new patterns. You can also generate remarkably complex still images.

ScapeMaker can transform any IFF image into a DEM landscape for import into Vista Pro or Scenery Animator. It determines height by either color value or palette order, and lets you control ratios. It can also merge an existing landscape with your IFF image, allowing you, for example, to easily extrude your name from a mountain. ■

Geoffrey "I'm not an artist" Williams uses clip art of all types in his work. He is Executive Producer of CBC Communication and director and newsletter editor for the Amiga Video-Graphics Guild. Write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

The Accelerator Equation



Popping in an accelerator board to speed up your machine does not always equate to a better, more powerful system. Part II of our "essential upgrades" series will show you how to factor in compatibility, other expansion, and price/performance, and then determine the best accelerator solution.

If you've tried using the scalable outline fonts of the new Workbench 2.0, or have "flown" a complicated jet simulator lately, you may have noticed that your computer does not seem as peppy as it used to. You aren't imagining things, but it's not a case of your Amiga slowing down. The sluggishness results from today's more complex applications. So while your Amiga can do more than ever before, it may not be doing it as fast as you would like.

If you want to restore the roar to your Amiga, a number of products can take your computer from a little faster to clean out of sight. But like the Good Book says, the race is not always to the swift. And choosing the right accelerator involves more than just buying the one with the fastest clock speed. You must consider what kind of programs you run, how much of a speed increase you really need (and can afford), and what other expansion devices you have or plan to add to your system. In order to get the most bang for your buck, however, you first have to understand a little about what determines how fast your computer performs. *(To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on page 100.)*

SPEED ANALYSIS

The part that does most of the work in your computer is the microprocessing unit (MPU), or processor for short. Speeding up your computer, however, is not as simple as getting a faster processor. For one thing, most processors are not plug-compatible with each other. For another, a computer is a system, so you can't just change one part and expect it to keep working.

To substitute a new processor, you have to find a way to make it look like the old processor to the rest of the system. That means an accelerator board has to be a complete computer system in itself, one that is faster internally, but communicates ►

By Sheldon Leemon

ILLUSTRATED BY ROB BARBER

with external system components at the old speed. A good accelerator board will also find ways to minimize the number of slow communication operations it must perform, and to allow the faster processor to operate at top speed as often as possible. That means storing more data internally or hooking up faster memory directly to the faster processor.

The simplest way to speed up a system is to run the processor at a higher clock speed. A 68000 running at a speed of 14.28 millions of cycles per second, or megahertz (MHz), will execute each instruction in about half the time it takes one running at the standard Amiga rate of 7.14 MHz. This is the basic principle behind ***ICD***'s **AdSpeed** ($209.96) board (and another clock-doubling board that ***Supra Corp***. plans to release in the near future).

Simply doubling the clock speed will not make the entire computer system run twice as fast, however, because executing instructions is only one part of what the processor does. The other part of its task is to communicate with the rest of the system. This communication function is often the more important, because the processor must fetch its instructions from memory before it can execute them. To make that job go faster, ►

The Accelerator Buyer's Checklist

ACCELERATING YOUR AMIGA can raise some complex technical questions. Here are some points to consider when you embark on the purchase of an accelerator.

✔ *How easy is the accelerator to install?* Most of them simply plug into convenient expansion slots on the A2000 or A3000, but A500 accelerators often plug into the 68000 socket, which requires some disassembly of the computer.

✔ *How compatible is it with hardware I have or plan to get?* Accelerators that plug into the processor socket (which is where they must be installed on the A500) can physically conflict with other boards that connect to the motherboard—such as the **ATonce** IBM emulator (***Vortex***), some memory boards, **Flicker-Free Video** (***ICD***), Kickstart switcher boards, and so forth (although some manufacturers supply extension legs to raise their boards up and over other expanders).

Using the A2000 processor slot rules out other boards that go into that slot, such as the A2000 version of the **Action Replay** card (***Coast to Coast Technologies***), ATonce, or the **Power PC Board** (***Supra***). It is a good idea to verify that an accelerator will work with your hard drive, memory expander, or bridgeboard/emulator before purchasing it. One good way to do this is to have the dealer from whom you buy the board install and test it with all your equipment.

✔ *Is the software I run compatible with an accelerator?* Most productivity titles, particularly those that have been written or revised since the introduction of the Amiga 3000, work fine with accelerators. If you use a lot of older software that has not been updated for a long time, or games on copy-protected disks, you may have problems. Make sure that what you need to work *will* work before you buy the accelerator.

✔ *Can I switch back to the original processor for compatibility?* You can easily disable most accelerators via either software or a hardware switch. In most cases, however, you lose the use of any RAM or hard drive connected to the accelerator. With copy-protected games, this is no problem, because generally you cannot install them on a hard drive.

✔ *What are the memory-expansion capabilities of the accelerator?* How much memory can I add, in what increments must I add it, and what chips do I use? An accelerator board should let you add at least 8MB of 32-bit RAM. If the board supports both one- and four-megabit RAMs, always use the four-megabit parts if you can't mix and match densities.

Some accelerators use exotic fast-RAM chips that cost a lot of money. Although fast-RAM chips that support burst mode can improve the performance of some boards, a 10-percent speed increase generally is not worth a 100-percent premium on the price. Unless you are willing to pay top dollar for that last extra ounce of speed, look for boards that use standard, easy-to-find chips or SIMM modules. (For more on RAM chips, see the sidebar "Memory Chip Buyer's Guide" in Part I of this series, "RAM For All Seasons," June '92, p. 31.)

Other memory issues to consider include whether the memory autoconfigures and whether the board gives you a choice of configuring the memory in the normal 68000 memory space or above it. Autoconfiguration is a nice extra, but it is not really necessary. Likewise, a choice of where to configure the memory provides the most flexibility, but boards that always configure memory above the normal space are fine.

✔ *Can I upgrade the speed of the accelerator later on?* Some boards allow you to increase your speed simply by adding a faster processor and a new crystal. Even if you cannot upgrade the board, some companies may offer trade-in discounts.

✔ *Do I want a floating-point math chip (FPU)?* Only a few programs—mainly in the 3-D, CAD, and spreadsheet fields—benefit from a math chip. If you do not use that kind of software very often, you may want to save some money by buying an accelerator without an FPU. If you do get an FPU, you may want to look at the less expensive 68881 rather than the 68882. Theoretically, the '882 can calculate twice as fast as an '881 if instructions are properly optimized to make use of the chip. In practice, however, the speed increase is often considerably less when compared with the difference in price.

✔ *Do I need an MMU (memory-management unit)?* Under AmigaDOS, an MMU is used only to map the Kickstart ROM image to 32-bit RAM, and to help programmers debug their software. The speed increase from a fast Kickstart is nice, but not earth-shaking, and many people will find that it is not worth the price of an MMU. Also, some accelerators provide ways of adding 32-bit Kickstart images without using 32-bit RAM or an MMU. By choosing a board with the EC (Economy) version of the 68030, you will not be losing much, and you may save enough money to make an accelerator an affordable proposition.

—SL □

ICD adds 32K of cache memory to the AdSpeed.

Cache memory is closely connected to the processor and can be accessed by it more quickly than normal system memory. The combination of a faster processor speed and an instruction cache makes it possible for the AdSpeed board to increase the running speed of your programs from one-and-one-half to two times normal.

The AdSpeed installs in the computer's 68000 processor socket. Plugging in the board is not as hard as taking apart your computer to get to the socket and then putting it back together again. You can use the board on all 68000 Amiga models (A500, A1000, and A2000), but not with CDTV at this time.

Because AdSpeed is rather small, you should not have problems installing it next to other piggyback boards—such as Kickstart switch boards, display enhancers, and chip RAM expanders—but you will probably not be able to stack it with other boards that also plug into the processor socket (such as ***Vortex***'s **ATonce** IBM-emulator) without some jury-rigging. The AdSpeed board is highly compatible with existing software, since it still uses the 68000 processor. You can switch it back to 7 MHz, through either supplied software or a hardware switch, to ensure absolute compatibility.

Adding a 25-MHz 68030 accelerator board to a system that has 16-bit fast RAM, but no 32-bit memory, will generally make programs run two to three times faster than their normal speed.

Another approach to speeding up your computer is to replace the 68000 with a board containing an advanced processor in the Motorola family. These include the 68020, 68030, and 68040 chips. (An earlier processor, the 68010, does not provide a noticeable speed increase over the 68000.) The least expensive of these is the 68020. ***TTR***'s **Sapphire** ($249.95), and ***CSA***'s **Midget Racer** ($199) are two examples of 68020 accelerator boards. (Commodore's once-popular A2620 board is no longer in production.) Both operate at the standard 7.14 MHz speed and depend on the advanced design of the 68020 itself for whatever speed increase they can provide.

Without a higher clock speed, or 32-bit memory connected directly to the 68020 processor, however, Sapphire and Midget Racer run your programs only about twice as fast as normal. They are also slightly less compatible than the AdSpeed because they replace the 68000 processor entirely, thus preventing you from switching back to it—short of physically pulling out the board and replacing the chip.

The main advantage of these boards over 68000 accelerators is that they provide an interface for the 68881 or 68882 math coprocessor chips. These chips allow programs that perform complex computations (floating-point math) to run many times faster. The catch is that only a handful of commercial programs make use of these chips. 3-D graphics programs like Imagine (Impulse), LightWave 3D (NewTek), and Caligari (Octree), scenery generators, CAD programs, and spreadsheets are about the only ones that use floating-point math.

For all other programs, such as word processors, paint programs, desktop-publishing software, and video-titling packages, the addition of a math chip will make no difference whatsoever. If you want to make your word processor run faster, you are much better off with the less-expensive AdSpeed.

THE BIG BOOST: 68030s

The next rung up the ladder represents a significant boost in both speed and power. The 68030 adds several features that make it faster than the 68020. First, it has a data cache in addition to an instruction cache for faster access to all kinds of information. These boards also run at much higher clock speeds—up to 50 MHz. Most importantly, they all provide for adding fast, 32-bit memory that is connected directly to the advanced processor. Adding 32-bit memory makes as big an impact on speed as having a faster and more powerful processor. (See Part I of this series, "RAM For All Seasons," June '92, p. 31, for more on 32-bit RAM.)

For example, adding a 25-MHz 68030 accelerator board to a system that has 16-bit fast RAM, but no 32-bit memory, will generally make programs run two to three times faster than their normal speed. The same board with 32-bit memory, however, will make programs run eight to ten times faster. And those boards whose memory supports burst mode (a special access mode that transfers information from memory more quickly) will be 10 to 15 percent faster still.

Another feature of the 68030 that can potentially boost performance is a built-in memory management unit (MMU). On the Amiga, the main benefit of an MMU is to allow the use of a Kickstart image that is copied to 32-bit RAM. Although this takes up some of your 32-bit memory (256K for Kickstart 1.3, 512K for 2.0), it provides faster access to the often-used Kickstart instructions, thus speeding up operations by ten percent or more.

Other uses for the MMU include running the optional Unix operating system (available from Commodore) and improving the performance of ReadySoft's A-Max, the Macintosh emulator for the Amiga. While all full-fledged 68030 chips contain an MMU, Motorola also offers a less expensive version of the chip, the EC030, which does not include the MMU. If you do not plan to devote any 32-bit RAM to remapping Kickstart, you can save some money by buying a board that uses the EC (economy) version of the chip.

The current lineup of 68030s includes accelerator boards from four developers: CSA, MicroBotics, GVP, and Commodore. ***CSA***'s **MegaMidget Racer** (MMR) ($450) and ***MicroBotics***' **VXL*30** ($399) plug into the 68000 processor socket. This means that you can install them directly in the Amiga 500 and A2000. (You can also install them in the A1000, but because of a space ►

problem inside the case, you must first make some necessary modifications—namely, replacing your internal 3.5-inch drive with a half-height version.)

You may purchase either of these boards in a variety of configurations, ranging from a simple 20- or 25-MHz 68030 without a math chip, MMU, or 32-bit memory, to a full-blown 40- or 50-MHz system with up to eight megabytes of 32-bit fast RAM. The modular design of these accelerators allows you to buy a basic board for under $400 and then to add a faster processor, math chip, or 32-bit memory when you can afford them. The MMR makes provision for adding 512K of fast 32-bit static RAM to the basic board, but for large-scale RAM expansion of either board, you need to add a separate plug-in RAM board (as of this writing, the VXL RAM board was not yet available).

Both boards let you switch back to the 68000 processor via software control to achieve compatibility with programs that balk at advanced processors. With the VXL, the accelerator memory is still accessible when you switch back to 68000 mode, but with the MMR it is not. MicroBotics also states that the VXL board will

Although the 68040 has been available for less than a year, there are already almost as many accelerators using the 68040 as the 68030, with more on the way.

provide a place to plug in an alternate system ROM, allowing you to install Kickstart 2.0 on the RAM board and then to switch between it and 1.3 under software or hardware control.

GVP's **A530 Turbo 30–40** ($999 and up) represents a new A500 accelerator solution. The A530 is an external unit that plugs into the expansion port on the left side of the A500. It is housed in a case that looks like GVP's A500 hard drive, which is only natural because the A530 includes a 52-, 120-, or 240MB hard drive along with the 40-MHz 68030 accelerator. Although the exact configuration was not available at press time, the unit will offer some 32-bit fast RAM (it holds up to 8MB), and an optional math chip.

The remaining 68030 accelerators were designed to simply plug into the the processor slot of the Amiga 2000. Among these are other, earlier GVP accelerators—including the **Impact A2000-030/882/28** and the **Series II** models (no longer in production)—and ***Commodore***'s **A2630** ($1795). ***GVP***'s third-generation board, the **G-Force 030 Combo** ($749 and up), comes in 25-, 40-, and 50-MHz models, each of which has a floating-point math chip and a SCSI hard-drive interface that lets you mount the drive directly to the card. Tying the hard drive interface directly to the accelerator enhances the drive's performance, providing an overall improvement in system operation.

The 25- and 40-MHz boards use an EC030 chip, and the 50-MHz model employs a standard 68000. While the 25-MHz unit comes with one megabyte of RAM (expandable to 13MB), the other two models use a standard 68030 and come with four MB of 32-bit RAM, expandable to 16MB. All three boards allow you to switch back to 68000 mode under software or hardware control, but you lose the 32-bit RAM and hard drive when you do so.

Commodore's A2630, the accelerator shipped with the Amiga 2500, provides a 25-MHz 68030, a 25-MHz 68882, and 4MB of 32-bit RAM. Amiga 2500 owners looking for more speed or more memory should watch for a couple of new products. ***CSA*** is now shipping its **Rocket Launcher** ($699), an "accelerator accelerator" that replaces the A2630's 68030 and 68882 chips with versions that run at 50 MHz. **DKB** is offering its **2632 RAM card** ($699.95 with 4MB), a plug-in memory card that offers up to 112 megabytes of fast-access 32-bit RAM expansion to the A2630.

Faster Than Fast: 68040s

The Motorola 68040 is currently the king of the mountain when it comes to advanced processors for the Amiga. Although the 68040 has been available for less than a year, there are already almost as many accelerators using the 68040 as the 68030, with more on the way.

The 68040 betters the 68030 in a number of ways. It takes fewer clock cycles per instruction, which means that a 25-MHz 68040 executes more instructions in a given period of time than a 25-MHz 68030. Its large 4K instruction and data caches greatly increase the "hit rate" (the frequency with which the processor finds needed data or instructions that are already within the cache).

The data cache can operate in copyback mode, which saves time on write as well as read operations. Also, some of the functions of the math chip are built into the 68040 (although it must emulate others in software, which offsets some of the speed gains). As a result of all of the improvements, a 25-MHz 68040 board will execute programs two to three times as quickly as a 25-MHz 68030 and up to 25 times as fast as a stock Amiga 500 or A2000!

Unfortunately, some of the improvements in the 68040 lead to greater compatibility problems than with previous processors. Many programs (including the program loader in Kickstart 1.3) do not work when the data cache's copyback mode is turned on. Having Kickstart 2.0 is almost a necessity to ensure an acceptable level of compatibility when using a 68040. Also, some hard-drive interfaces (notably DMA drives like Commodore's 2090A and 2091) exhibit problems when operating with 68040 boards. Many boards skirt this problem by offering their own built-in SCSI controllers. Most allow you to revert to the 68000 processor—via hardware and/or software switching—to achieve compatibility.

68040 accelerators for the A2000 are currently available from three manufacturers. ***Progressive Peripherals*** has the **040/2000** ($2260 base) and the **Zeus** ($2895 base); ***RCS*** offers its **Fusion Forty** ($1499); and ***CSA*** ►

serves up the **40/4 Magnum** ($3995). All of these boards are easy to install—you simply plug them into the processor slot. They come with a little more software than comparable 68040 boards for the A3000. Examples of such software include programs to add the expansion memory, to move certain system pointers to 32-bit memory, to manipulate the caches, and to add the software floating-point support.

The 68040 accelerators all offer large-scale 32-bit memory expansion to at least 32MB. Note, however, that the Magnum requires 16MB SIMMs for maximum expansion (see "RAM For All Seasons," previously cited, for more on SIMMs). The Magnum includes a megabyte of very high-speed static RAM, which dramatically improves memory-access speeds in certain cases.

The Progressive boards run a 25-MHz 68040 at 28 MHz, as do newer versions of the Fusion Forty (although this practice of "over clocking" is frowned on by many engineers). The Magnum runs the chip at its rated speed of 25 MHz. Both the Zeus and Magnum boards include a high-speed SCSI-2 drive interface that can transfer data at speeds of up to 10MB per second. The Magnum also allows two serial ports (one is included) and a parallel port.

The final component of the "accelerator equation" comes down to this: How much speed do you need versus how much money can you afford?

Two other 68040 accelerators for the Amiga 2000 should be available soon. ***GVP*** is readying a **G-Force 040 Combo** board (around $2500) for the A2000, similar to its line of 68030 accelerators, but also including 32-bit RAM expansion and a built-in SCSI controller. ***Supra*** plans to market a 68040 for the A2000, as well.

Adding a 68040 accelerator to an Amiga 3000 is even easier than adding one to the A2000, because the A3000 already is a 32-bit machine (it comes with a 68030 chip as its standard processor). Progressive and GVP make accelerators that plug into the 200-pin accelerator socket of the A3000 and run a 25-MHz 68040 chip at 28 MHz. ***Progressive Peripherals*** offers both the low-cost **040/3000** ($1795 base), which uses the 32-bit RAM already installed in the A3000, and the **Mercury** ($2599.95 base), which provides for up to 32MB of fast-access 32-bit RAM on board.

GVP counters with its **G-Force 040** ($2149 with 2MB), which allows you to add up to 8MB of high-speed, 40ns RAM to your A3000's existing 32-bit RAM. Both the Mercury and the G-Force can be switched via software to 68030 mode on a 25-MHz A3000, although the Progressive board will not run in '030 mode on a 16-MHz machine. The Mercury, however, still allows you to use its RAM when you switch back to the 68030, while the GVP board does not.

On the lower end, ***Progressive Peripherals*** even has announced a 68040 accelerator for the Amiga 500! This board ($1295) plugs into the 68000 processor socket, includes 4MB of 32-bit RAM, and can switch back via software to 68000 mode. It also features on-board 2.04 Kickstart ROMs and the ability to switch between 2.0 and 1.3.

Speed vs. Need

While this article has examined a number of factors to consider in adding extra processing power to your system, the final component of the "accelerator equation" comes down to this: How much speed do you need versus how much money can you afford?

Currently, accelerators fall into three distinct categories. The fast 68000s almost double the speed of a stock Amiga, and they cost less than $200 (please note that prices mentioned in this section of the article are not necessarily manufacturers' suggested retail prices, but "street prices"—i.e., the price you are more likely to pay when shopping for these items). That speed is good enough to smooth out jerky animations or to pep up a game that has been dragging.

The next step up in both speed and price is to 68030 accelerators (the 68020 boards are almost as expensive as the '030s and only as fast as an accelerated 68000). A 68030 with 32-bit RAM is almost ten times as fast as a stock system. You can buy an EC030 board with some 32-bit memory for under $800. In fact, with GVP's lower-end Series II board, you also get a hard-drive controller and a 68882 for that price. If the jump from $200 to $800 is too big for you to swallow in one bite, you can purchase modular systems for under $400, such as the MegaMidget Racer and the VXL*30, that let you buy the processor now and add the memory later.

The basic 68030 system (25-MHz processor and 32-bit RAM, but not necessarily an MMU or FPU) is the one that gives you the greatest performance boost for the lowest price. This level of performance is adequate for all but the most demanding 3-D rendering jobs. Adding high-speed RAM and a 50-MHz '030 to this mix will give you some incremental increase in speed, but you may pay twice as much for a system that is only about one-and-one-half times as fast as the basic 25-MHz 68030.

If you are that willing to pay for extremely high speed, you may be better off looking to the 68040 accelerators. All of these boards run at blazing speeds, but those that have a built-in hard-drive interface also speed up drive transfers, which makes a noticeable improvement in system performance.

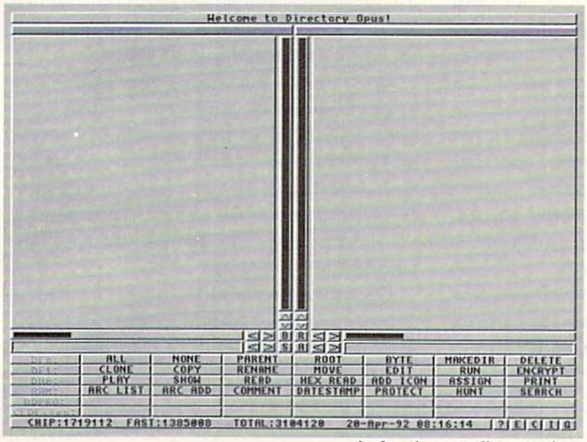
Accelerator prices have dropped dramatically in the last year or so, putting high-speed performance within the reach of most Amiga owners. Watch out, though; speed can be addictive. Once you have tried it, you may never want to go back. ■

Sheldon Leemon is a well-respected authority on virtually every aspect of the Amiga. When he is not writing books or magazine articles, you can find him working at Slipped Disk, a Michigan-based Amiga dealership. Write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

Is your directory utility dull, weak, and generally unpleasant?

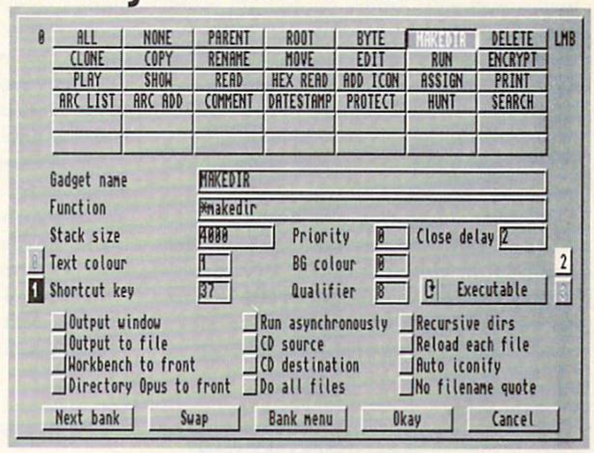
Do Something About It!

You start out with this...



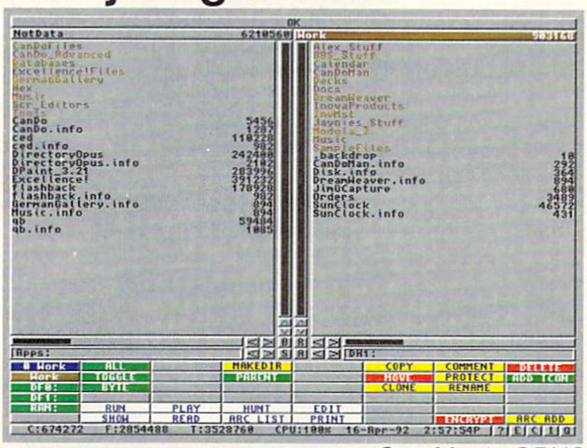
default configuration

then you use this...



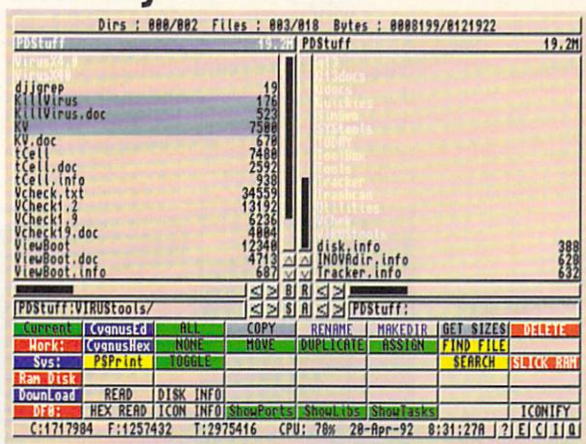
gadget config screen

and you get this...



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Investment Software

IF YOU HAVE been wishing that there was a way your Amiga could help in the management of your investments, we have unearthed (after more than a little digging) at least four packages that will fill the bill. Even if you are only a "paper investor"—without a dime invested in the market—you may find these programs of interest, too.

All four packages are dedicated to stock-market and mutual-fund technical analysis. In simplest terms, this means taking a set of proven mathematical principles and applying them to any given stock, mutual fund, or market indicators. Each of these principles, or tools, is designed to take the information that the market itself generates (highs, lows, volumes, closing prices, averages, and so on) and "massage" it to come up with a reasonable projection of what the market is doing now and where it is going next.

Some market players use just one tool or indicator. More sophisticated investors apply a whole series of these formulas to the market as a whole, and to their own investments in particular.

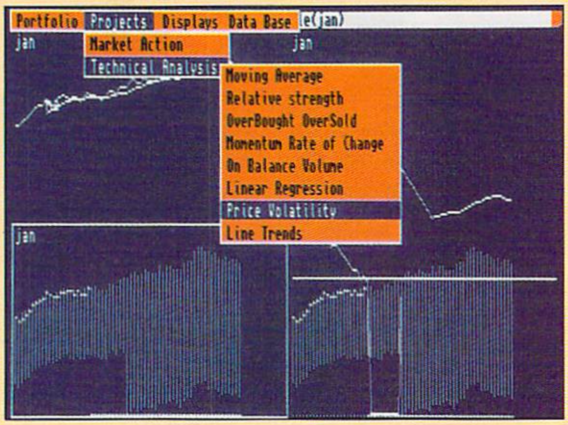
In short, a good technical-analysis program should provide—through its various tools—the information and evaluations that will help you decide when to get into the market...and when to get out. In that way, it will help you maximize your profits while minimizing your risks.

All of these packages are essentially chart-and-graph generators. They take the basic data, apply a mathematical formula, and generate a chart. One of the keys to using them successfully lies in interpreting those charts so as to understand the signals they give and the trends they predict.

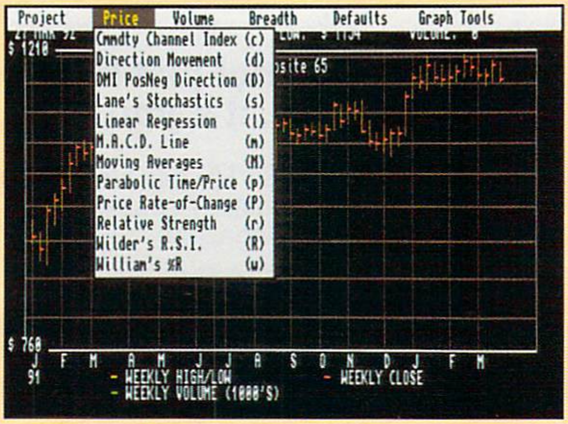
(To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on page 100.)

MICROTRADER
MicroActive; $195

Perhaps the most flexible package, MicroTrader offers a wide range of analysis tools. Like The Securities Analyst, it provides up to four simultaneous chart comparisons. It also has the only communications module that allows user access and scripting. Unlike The Stock Analyst and Investor's Advantage, it gives you a wide range of data services from which to get your historical, daily, or weekly data: CompuServe, Dow Jones, GEnie, and numerous private services. A complete formatting editor lets you put the information in a form that MicroTrader can use.



MicroTrader provides a wide range of analysis tools, but is hindered by its four-color display.



An impressive array of tools and indicators is the forte of the Stock Analyst.

Also available (at extra cost) is a module that provides for real-time, completely automated data monitoring. With this module, you can program your computer to tap into real-time services at any interval throughout the day and get instant information. Selected stocks—up to 600 of them—can be tracked constantly, providing you with target prices, alarm settings, and automatic updates of the bid, ask, and last trade for each security.

Alas, as good as it is, MicroTrader has one serious flaw. Its graph and screen displays rank at the bottom of the pack. For some reason, the Amiga version uses only four colors; in a program that can chart some 12 different interpretations of the same data on a four-way split screen, this is entirely unsatisfactory. It makes the graphs unnecessarily difficult to read and to interpret. An IBM version of the same program provides 16 colors in either VGA or EGA modes.

THE STOCK ANALYST
Aggressive Communications; $25

The surprise package of the lot, The Stock Analyst was formerly a commercial offering, but is now a shareware release. It stacks up extremely well against the other three programs. It provides every technical tool found in the commercial packages, plus a few you won't find in any of the others.

While it does not offer split-screen comparisons like MicroTrader and The Securities Analyst, it does provide a far greater range of analysis tools than the others. It also includes Auto Loader, an integrated communications program that offers automated data retrieval. Auto Loader is set up for use with a data service (called Dial/Data) that can provide almost any type of financial information you require, including securities, options, market indicators, statistics, and commodity futures.

The only negative here is that the communications program is dedicated to the Dial/Data format and cannot be changed by the user. The costs, however, are extremely reasonable (a deposit, no set-up fee, a $15-per-

month minimum, and charges per downloaded quote), and the totally automated downloading process is completely free of trouble.

The Stock Analyst is comprehensive in all regards. The manual is surprisingly large and detailed, and it offers a superb education in the use and interpretation of each of the tools provided.

THE SECURITIES ANALYST

Briwall; *$59.95*

Like all the programs in this survey except for MicroTrader, The Securities Analyst is written in a form of compiled BASIC. Apparently the oldest program of the group (it comes on a Workbench 1.2 disk!), it is also the most bare-boned in terms of features and frills.

While it provides many of the technical-analysis tools found in the other packages, it does not provide for any form of automated data entry. You must enter all market data manually, one figure at a time. It will take an extremely dedicated individual to stick with this program week after week when there are better, easier methods available.

The program does, however, have one worthwhile feature shared only with MicroTrader: the ability to create four on-screen graphs of a single stock simultaneously. Being able to see a single stock or indicator measured against four different criteria at the same time can be a valuable feature.

INVESTOR'S ADVANTAGE 2.0

Software Advantage Consulting Corp.; *$399.95*

Investor's Advantage does a very competent job of automated downloading through its integrated communications program. It also offers a selective but useful choice of analysis tools. It does everything well... but exceedingly slowly, too. Every change you make in tools or analysis requires seemingly endless module loading.

In short, it is a very good program with great graphs, excellent manual, and a smooth-running automated downloader, but it could benefit greatly from a reprogramming. Like The Stock Analyst, its communications program is also dedicated and not user-changeable. Investor's Advantage is linked to Warner Data Service, which provides every type of current or historical data you will probably ever need. Warner charges a moderate $30 set-up fee and a charge per quote downloaded, which is very competitive with The Stock Analyst's Dial/Data.

INVESTMENT SOFTWARE FEATURES

	Stock Analyst	Investor's Advantage	Micro Trader	Securities Analyst
Analysis Tools:				
Advance/Decline Line	X	X		
CBOE Put/Call Vol. Ratio	X	X		
Chaikin Oscillator	X	X		
Commodity Channel Index	X			
Directional Movement Indicator	X			
Lane's Stochastics	X	X		
Linear Regression	X		X	
Moving Averages	X	X	X	X
Centered Moving Averages	X	X		
On Balance Volume	X		X	
Parabolic Time/Price System	X			
Positive & Negative Volume Index	X			
Price/Earning Analysis				X
Price Rate of Change (Performance)	X	X	X	X
Price & Volume Trend	X	X		
Relative Strength	X	X	X	X
Sine Wave Cycle Analysis		X		
Trend Lines/Trading Bands	X	X	X	X
Trailing Stops				X
Volume Accumulation Distribution	X			X
Wilders Relative Strength Index	X	X		
Williams Percentage R	X			
Program Features:				
Split Screen Comparison Displays			X	X
Automated Download Capability	X	X	X	
Dedicated Communications Program	X	X		
Programmable Comm. Program			X	
Data Format Editor			X	
Printed Reports/Charts	X	X	X	X
Daily Barometer Feature		X		
Weekly Barometer Feature		X		
Spreadsheet Data Export		X		
Real Time Tracking/Trading			*	
Graph Zoom/Magnify		X		

* Optional at extra cost

THE BOTTOM LINE

In terms of the kinds of technical analysis it provides, this type of software certainly offers the easiest and most convenient route to analyzing your finances. There are, however, a number of financial databases that will allow you to acquire all kinds of financial information on line. Some will even provide on-line technical analysis.

Over the medium-to-long haul, however, this could turn out to be an expensive proposition. These services—provided in varying degrees by CompuServe, GEnie, Dow-Jones, and others—might be suitable for those who require only an occasional piece of information or analysis.

For those actively managing a portfolio, or for those who would just like to get their feet wet by way of practice, I recommend the shareware program The Stock Analyst. At $25, it's more than a bargain: It's a steal. You can even find a full version of the current release of the package in the General Application library of the AmigaUsers forum on CompuServe. But whatever program you choose, the important thing is to practice sharpening your investment skills so you can learn how to hold your own—and better—in the Big Game. ■

Gary Ludwick is president of The Creative Department, a Charlotte, NC-based advertising agency that uses Amigas extensively. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.

ACCENT ON GRAPHICS

Cyberspace Techniques

41

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

I ONCE SPENT time in the ancient Mayan city of Palenque. The visual impact of those massive stone structures rising out of the encroaching jungle was unforgettable. Having done many sketches and paintings based on those memories over the years, I've always wanted to try painting a "cyberscape" of jungle ruins with my Amiga. With the tools available now, there are several ways one could effectively tackle such a project.

For this month's column, I chose to paint aerial views of the terrain in two parts with **DeluxePaint** (***Electronic Arts***), combine them in **ScapeMaker** (***MegageM***), and render the image in **VistaPro 2.0** (***Virtual Reality Laboratories***). ***Natural Graphics*' Scenery Animator** will also work fine for the VistaPro part of the process. *(To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 100.)*

To try this approach, use Page Size in DPaint to work on a lo-res 320×258 screen. Use Shade mode, a 32-color range, and a large brush with the dotted-line tool. (For further details of this painting process, refer to "Landscaping in Cyberspace," Feb. '92, p. 41; Accent #9, Nov. '89, p. 74; or "Around the World in 80 Frames," Oct. '91, p. 39). ScapeMaker can treat each successive palette position as a higher elevation. The color is irrelevant. As you paint in Shade mode, one button raises elevations, and the other lowers them.

When the map is complete, use the filled-rectangle tool and a high-elevation color to paint building foundations into the landscape. Save the image. Next, erase everything but the rectangular building foundations and change these to mid-elevation palette colors. Then add new rectangles on the foundations to represent building features as shown in the inset to the accompanying illustration. Think of higher palette positions being higher towers or walls. Be sure the background color surrounding your buildings is color zero and save this under a new filename.

Double Expose and Prepare to Render

Run ScapeMaker and open the first image, the landscape with foundations. Under controls, select Color Number. Set Scale to 3, select a full Scape Area—258×258 pixels—and Grab Scape. Smooth the grabbed scape at level 4. Next, from the Control menu, select Double Expose. Open the second image—the buildings. Set the full Scape Area and Grab Scape. Save the scape file without further smoothing, and you are ready to render in VistaPro (or Scenery Animator).

Load the scape file in VistaPro and set Vscale to 3 to exaggerate the vertical elevations. In Cmap, adjust any default colors to natural settings. Around Palenque at certain times of the year, smoke from slash-and-burn fires creates a peculiar orange sky late in the day. To simulate this sky behind my jungle ruins, I set Sky, Horizon, Haze, and Sky Haze to shades of orange. Position camera and target and try a rendering at level 8 or 4 to test the settings prior to doing a high-resolution pass.

At Polygon level 1, the character of the buildings should be similar to what you see in the illustration. Specifically, the buildings should tower over a low, rolling terrain, standing out in sharp relief. This is the direct result of the double exposure in which the elevations of the second image were added to those of the first. That additive method necessitated the flat foundations in the first image. Without that surface preparation, the roofs of the finished buildings would follow the irregular contours of the underlying terrain rather than being flat.

Had I painted the buildings on the original map instead of using ScapeMakers's Double Expose, they would not have towered over the surrounding landscape. A further virtue of double exposure is that I could smooth the

Combining painting and landscape-rendering techniques can lead to some fascinating "cyberspacing" adventures.

first landscape while leaving the second image of sharp buildings unsmoothed, thus preserving sharp edges.

These capabilities combine to allow the cyberscape artist to create radically different kinds of terrain in the same landscape file. For instance, I have used double exposure to put steep cliffs and fjords in otherwise low, hilly landscapes, thus simulating the look of northern Scotland. I find that fractal-generated landscapes do not yield this variety in the same scape. Keep in mind that double exposure in ScapeMaker can be repeated again and again with different images to build up very complex maps.

Cyberscaping Extras

While double exposure remains a feature unique to ScapeMaker, VistaPro 2 has added a Property menu that includes many powerful options for the cyberscape artist. View>Alt converts any loaded image into an elevation map that you can render as a landscape. Alt>IFF saves an elevation map as an IFF image you can modify in DPaint. IFF>Alt loads that modified map back into VistaPro for rendering. Col>IFF is a powerful feature that lets you save VistaPro's internal codes for each landscape polygon as an IFF image.

In DPaint, then, you can use specific menu colors to recode the polygons. The landscape contours are not changed, but you can force VistaPro to render areas as snow, trees, water, and so on.

Of particular interest here is that you can use colors 28–31 to code areas of the landscape to contain buildings. Just paint with those colors where you want buildings to appear in the finished rendering. IFF>Col loads the altered color map back over your landscape for rendering. Convincing clusters of blocks will then appear in the finished image. The scale of these buildings is much smaller than that of the towers created through my manual method,



Two hand-painted maps were combined in ScapeMaker and rendered in VistaPro 2.0 to create the above image of stone ruins rising out of the jungle. The inset shows a map detail with an arrow indicating the camera position.

but it is very appropriate in comparison with the scales normally assumed in a landscape file.

My jungle-ruins image would not be complete without a jungle. Both Scenery Animator 2 and VistaPro 2 offer some amazing tree-rendering options. Buttons on VistaPro's control panel—designating Palms, Oaks, Pines, and Cactus—enable you to make such trees appear in the landscape at different elevations. These fractal forms add wonderful character to the finished picture. A versatile Cloud feature lets you control the weather behind the landscape. To further enhance the natural appearance of the picture, play with VistaPro's Haze colors and Density. In my jungle ruins, I used Haze settings to make the distant landscape fade into the smoky summer air.

I rendered this illustration in Extra_Halfbrite, preferring the somewhat abstract look of the crisp color patches. As an optional added touch, rendering directly to **DCTV** (***Digital Creations***) format produces particularly powerful skies and subtle shading in the distant haze. Finally, for everything from scratch-built landscapes to subtle touch-ups, keep **TerraForm** (***Virtual Reality***) handy. This program has a great interface for modifying elevation maps and should be part of your cyberscape toolkit. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.



Out With Dropout!

You've tried scrubbing. You've tried soaking. But you still come up with streaky video. Now you can do away with dropout by using a Video Toaster.

By Paulo de Andrade

IT APPEARS SUDDENLY and without warning. Before you realize what's happening, it can take over your tape like crabgrass in a garden, sometimes seeming to render your best shots useless. It is the videomaker's nemesis. It is the dreaded dropout.

Video dropout usually shows up on tape as thin white streaks, and sometimes as thin blocks of lines. It often appears when you least expect it, and seeing it can cause you to panic. You know the lines were not there when you recorded the tape. What are these streaks and where on earth did they come from?

Know Thine Enemy

Videotape, like a floppy disk or any other magnetic media, consists of a plastic base "painted" with magnetic material. This thin magnetic layer, containing millions of microscopic particles, stores the electronic information that forms images.

When a tape is blank, you see only "noise" because the magnetic particles are randomly arranged and contain no information that makes sense to a videotape recorder (VTR). When you record onto that tape, the video heads create magnetic pulses that rearrange the particles according to the video information. As you play back the tape, the heads of the tape player read the information, translate it, and display it on the screen as video imagery.

If any of the magnetic material is damaged, some of the information that makes up the image will be affected. When that missing information pertains to the formation of a scan line, then you get blank pixels—that is, you get dropout.

Dropout can result from dust settling between the tape and the heads, from such tape-manufacture defects as lack of oxide, or from flaking of the magnetic layer. In any case, you lose part of the image, albeit sometimes a very small part.

Dropout can vary considerably, depending on the videotape format you use. As a rule, the narrower the tape, the more pronounced the dropout will be. The reason is simple. Data is packed more densely on a narrow tape than on a wider one, so when a fragment of the oxide layer falls off, it takes away more information on a narrow tape.

The old two-inch broadcast videotape format was very stable regarding dropout. A missing magnetic bit did not make much of a difference, because it contained a relatively small amount of information. Dropout trouble became more pronounced with the advent of the $^3/_4$-inch format. Nowadays, most video formats (VHS, S-VHS, Betacam, MII) use $^1/_2$-inch tape, which packs video information very densely. Therefore, the risk of dropout is higher today. ►



Notice the long streak across the top third of the frame in this detail of a painting by Erna.



Going, going... With half of the dropout gone, the job is almost done.



...Gone! In the finished picture, dropout is completely eliminated. When recorded to tape, this frame matched the others perfectly.



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Circle 178 on Reader Service card.

Video-equipment manufacturers created the Dropout Compensator (DOC) to battle the problem. DOC is a circuit that senses the signal loss from the magnetic layer and substitutes information from the previous scan line. That is why, when dropouts are severe, they appear as thin blocks of lines. Unfortunately, DOCs can help only to a certain degree, and good DOCs come only with very expensive machines.

Tactful Tactics

I have experienced dropout throughout my professional career. My most recent encounter was a few months ago. While overseas, I shot some footage using a tape format different from the one I usually use, because I did not have my equipment with me. When I got back and transferred the tapes, I found an alarming degree of dropout. In cases like this, dropout becomes a major problem. Because reshooting would have been so costly as to render my project economically unviable, I needed to find another solution.

The Amiga was able to provide that solution. After some searching, I found a way to banish dropout by using NewTek's Video Toaster and the Toaster Paint software that comes with it. (This method might also work with other products, such as Great Valley Products' Impact Vision 24 and its Macro Paint program, but I do not have that system and therefore could not verify it.) To achieve the effect, you need two VTRs in addition to a Toaster—one of them frame-accurate and the other with a steady pause or freeze frame.

You need not remove all the dropout on your original tapes—only that on the frames that appear in your edited master. When a streak or block shows up as you run the master, simply find the corresponding frame on your original tape and grab it with the Toaster's Freeze feature. Then save it as a Toaster Framestore.

Now jog back one frame on your original tape and capture that one as well. Load this frame into Toaster Paint and highlight Swap on the Picture menu. Selecting Copy This Picture will duplicate the image onto the spare screen.

Now load the first frame you saved. As you scroll around the screen, you will find your dropout. Select Rub Thru from the Mode menu, choose Freehand Draw mode, and pick a brush size as tall as the dropout itself. Using this brush, simply "paint" over the dropout. The information from the previous frame will replace the dropout's lack of information, and the resulting frame is likely to look almost perfect.

If the result of the rub-through was not good enough, you can use other tools to perfect it. First, try setting Transparency to the borders of the brush to make the effect more subtle. You can also select Blur from the Mode menu and use the brush to blend any unnatural edges that may have shown up.

When you have finished perfecting the results, render your screen to the framebuffer by pressing the F10 key and record it on the edited master, replacing only the frame that showed dropout. Then play the tape back and note with satisfaction that the dropout has disappeared.

Smoothing Moves

The implementation that I have described above works best when the difference between frames is small. You are not defenseless, however, against dropout in the middle of a camera movement where there is a great difference between frames. In such a case, grab only the frame containing the dropout.

What you are going to do next is very similar to what a DOC does. When you get to the dropout area in Toaster Paint, measure it. If it is two scan lines tall, for example, cut a brush of the scan line below it and paste it to the lower line of the dropout. (Make sure to align the brush horizontally so that it matches the information on the line below.)

Now cut a brush of the line above the dropout and paste it onto the remaining blank line. Using Blur mode, blend the new lines with the old ones so that the transition between them is smooth. Now render your result to the framebuffer and record to the edited master, as in the previous example. As before, when you play the tape back, you should find that the dropout is missing—or at least is not noticeable.

Both these approaches can also help when a VTR's DOC does not completely clear the dropout and leaves a small block of lines. For this purpose, you should modify the second method just slightly: Instead of cutting brushes, simply use the Blur feature to attenuate the DOC's correction effect.

Strike a Match

If you experience a big difference in color phase (hue) between the original images and the processed frames, it might be because some Video Toasters occasionally do not adjust themselves so as to match the characteristics of the system. (Toaster 2.0 does a much better job of this than the original version, however.)

To correct this, first try running the Auto Hue program that comes with the Toaster. If that does not help, check for large differences between both framebuffers. According to NewTek, the discrepancy should be less than 3 degrees (a vectorscope measures the differences accurately). If the difference is greater, call NewTek.

If you try the above fixes and the difference in phase is still bothersome, you will have to manually match the characteristics of the image by using the controls on your time-base corrector (TBC) or processing amplifier (ProcAmp).

Although it is not difficult to eliminate dropout using the Amiga, it is better to avoid it in the first place. Preventive measures may be a little bit time-consuming, but they are well worth the effort if they help preserve your valuable images—especially the ones that are impossible to reshoot.

First of all, it helps to store your tapes in a cool, dry, dust-free location. More importantly, however, you should use only high-quality tape. The best manufacturers spend a great deal of effort, time and money improving their products so that you encounter dropout and other problems less frequently. Until they reach perfection, it is comforting to know that you can use your trusty Amiga to eradicate evil dropout when it takes root in your tape. ■

Paulo de Andrade is the president of Kinema Graphics, a broadcast-quality production company that uses Amigas in its work. His experience includes eight years of network television and six years of computer animation. Write to him c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

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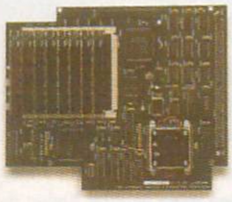
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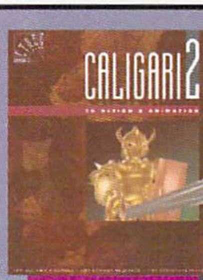
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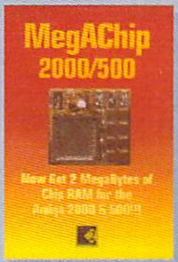
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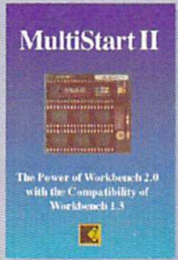
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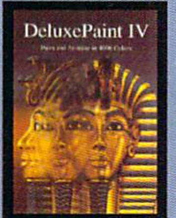
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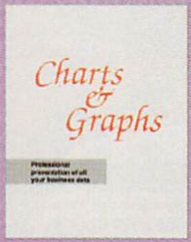
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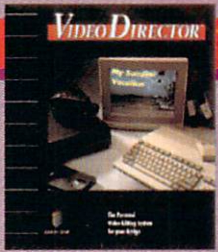
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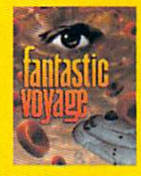




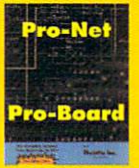
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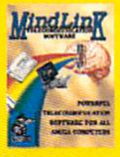
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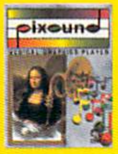
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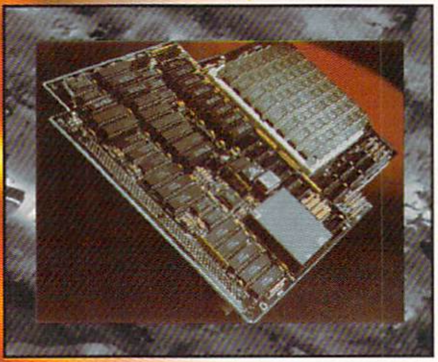


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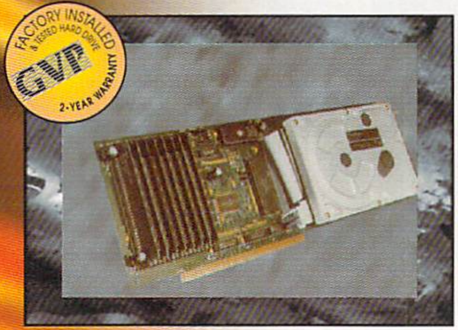
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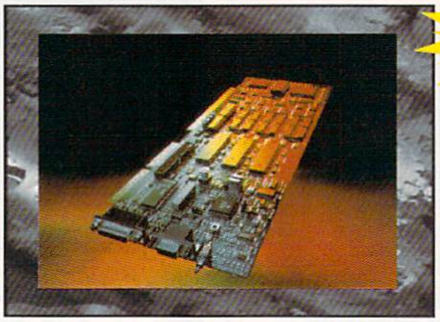
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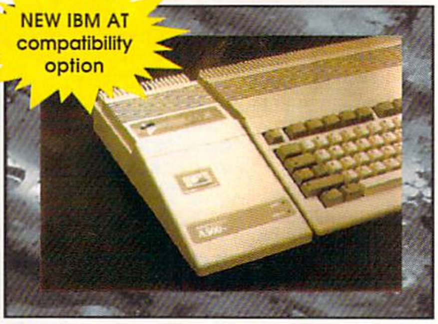


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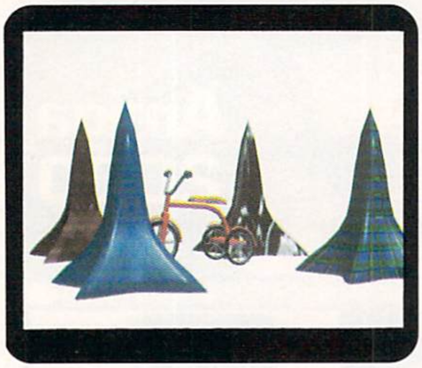
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From p. 22.
really designed to let you "eye" your objects and scenes.

Object and subobject dependency are handled very smoothly. You simply "glue" objects together. In this way, you can glue the finger to the forearm, the forearm to the upper arm, and the upper arm to the body. The easiest way of doing this is dynamic picking; simply click on an object to choose and glue it. You can then rotate the upper arm, and all the subobjects will stay glued and move with the proper parts. This method of hierarchical grouping is easy and does not require you to define the hierarchy in a separate requester or mode.



Caligari2's memory-efficient object cloning is easy to use.

The last part of object design is to assign the primary color to the faces for a quick render. Color space can be defined as Red, Green, and Blue (RGB); Cyan, Yellow, and Magenta (CYM); or even Hue, Saturation, and Value (HSV). HSV is commonly used in video, RGB with computer monitors, and CYM for print. In Renderer, Caligari lets you use HSV sliders to define your color (any one of 16.7 million) but indicates the changes via RGB values—one of the oddest methods I have seen. I enter my desired RGB values directly in gadgets. With either method, a 16-color palette shows you a rough approximation of the total results.

The Scene Composition area is another strength of this program. The interaction is very similar to LightWave. Your viewing position is your camera. You can quickly create animation sequences by altering your position, your objects, or your lights. To lighten the object-creation load, you have Key Framing capability: simply move, scale, and rotate your objects, position, or lights, and Caligari generates the inbetweens, either linearly or on a spline curve. Script-based animation control allows you to fine-tune sequences.

In the Scene Composition area, you can also assign an object's specific attributes, such as transparency, specularity, texture maps and so on. To conserve memory, you can add multiple copies of an object or assign different attributes, and Caligari will require memory for only one object. You will not, however, be able to manipulate the subobjects into different orientations.

Taking Shape

In the Renderers area, you have two choices—QuickRender and Broadcast. There are five types of shaders available: Flat, Gouraud, Phong, Metal, and Environment. You can also control lights as Infinite, Local, or Spot. The lights and shaders do not work in QuickRender, which is really a test mode; they can be assigned only through Broadcast. The variety provides a more than adequate ability to produce high-quality images for animations.

Caligari is not a ray-tracer and therefore cannot create real-world reflections and refractions. Through careful use of environmental maps and shadow volumes, however, you can obtain convincing results. Speed results on my 28-MHz 68030 were comparable to the rendering times of competing programs, and Octree's method definitely produces faster results on subsequent renderings of the same scene, because it saves information about lighting and attributes during the first rendering calculation. In Broadcast, you can select from multiple sizes and antialiasing levels prior to your final renderings.

Overall, I am pleased to see the improvements in Caligari, but I am disappointed about several things. First, the documentation is inadequate and generally too technical, and Caligari2 lacks an index. The program does ship with an hour-long video, but it, unfortunately, is more of a commercial than a tutorial, telling you what the program can do, but not how to do it. I am also amazed that, while Caligari will use either Targa or Rendition files for texture maps, you cannot use IFF images for this purpose (although this is promised for an upgrade). In Caligari2, a step has been made, but I think a few more are needed to keep up with the fast-paced competition.

On the high end, Caligari Broadcast 2.1 is an extremely professional 3-D design and animation package, comparably priced with professional PC and Mac 3-D packages—sans dongle! The output quality and speed of rendering are notable.

Phoenix A1000 Replacement Motherboard

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A second wind for your A1000.

By Sheldon Leemon

LIKE THE MYTHICAL bird that is reborn from its ashes, the **Phoenix** board (***Phoenix Microtechnologies/The Grapevine Group***, $850) breathes new life into an Amiga 1000 by replacing its entire motherboard. All you salvage from the A1000 is the case, power supply, floppy drive, keyboard, mouse, and five chips (two CIAs, Denise, Paula, and the 68000 processor). If your computer contains certain brands of floppy drives or 68000 chips, even those must be traded in.

The computer you end up with has many more features than your original A1000. Most noticeably, instead of a puny 512K of chip RAM, you have a full two megabytes (the two-meg Agnus chip and memory comes standard with the board). Another major plus is that the board has a built-in SCSI hard-drive controller. With the provided mounting hardware (and a little modification of the metal shield), you can mount a half-height 3.5-inch SCSI hard drive inside the A1000. Or, if you prefer, you can replace the internal floppy with a full-height hard drive and use the built-in option of making an external floppy respond as if it were the internal drive.

While the original A1000 had no internal expansion slots, the Phoenix board has both a video slot and an A2000-style slot, in addition to the A1000's external expansion connector. It even adds a couple of proprietary expansion connections, such as a socket for Phoenix's own memory board and a front-panel connector, which Phoenix hints may be used for future products.

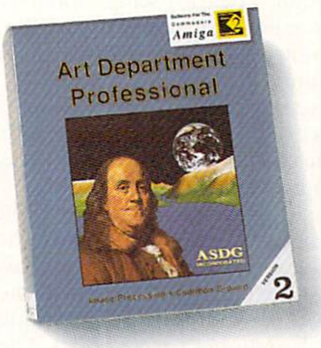
The board comes with Kickstart 1.3, but allows you to add 2.0 ROMs and alternate between them by means of an included hardware switch. It also has a battery-backed hardware clock/calendar and a slot for a math coprocessor chip that the 68000 can access as a peripheral device.

Transplant Surgery

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Circle 4 on Reader Service card.

screws, you can remove the motherboard, pull off the custom chips and processor, insert those chips in the Phoenix board, and drop in the new motherboard. After a pause for testing (and perhaps reading the text of the Desiderata, which is engraved in full on the motherboard), you're ready to put the case back together. The whole process took me about an hour, including a careful reading of the directions.

Indeed, you may want to read the manual more than once before you begin. Even though it warns that the machine takes a long time to boot if no hard drive is attached, booting took so long that I thought the computer wasn't working. After carefully searching the manual, I found that removing jumper L35 (or holding down the left mouse button on power-up) disables the hard-drive auto-boot feature and speeds up the boot process.

Although the manual is fairly comprehensive, it fails to explain the exact function of every jumper on the board. As there are over 50, this is a significant oversight that hampers troubleshooting. The Grapevine Group says that a new revision of the manual will include this information.

When I installed a 40MB Quantum hard drive with the internal SCSI connector and power cable, it booted right away and performed without problems, albeit a little slowly. According to DiskSpeed 4, the maximum transfer rate was only about 100,000 bytes per second, definitely at the low end of the scale for this drive. Adding a Kickstart 2.0 ROM and the hardware switch allowed me to alternate between 1.3 and 2.0, again with no problems.

The next tests were not so trouble-free. When I tried installing a four-meg Supra RAM card or a two-meg Micron memory board in the A2000-style expansion slot, the machine would not boot. After a call to technical support (and a day's delay while they consulted the Australian designer), I was informed that expansion boards should be plugged in so that the rear bracket faces the front of the computer, which is not mentioned in the current manual (but will be added, Grapevine promises, to the next version).

Although I was assured that other RAM boards such as Commodore's 2080 and MicroBotics' 8-Up had been used successfully with the Phoenix motherboard, all attempts to get my boards working failed, despite the earnest efforts of Grapevine Group's technical support. We finally concluded that I had damaged the motherboard by inserting the cards the wrong way. I was able, however, to add fast RAM with a MicroBotics Starboard attached to the external expansion port.

One Size Fits All?

Even when it does function perfectly, the usefulness of the Phoenix's A2000 expansion slot is limited. For one thing, the motherboard already has a SCSI hard drive controller and provides a connector for an optional, proprietary eight-meg RAM board. For another, with an A2000-style card standing up in the connector, the top cover and front panel do not fit on the computer. The card stands about two inches taller than rest of the A1000 and protrudes a good inch or so over the front.

I had better luck using a MicroWay flickerFixer in the video slot. Not only did this board work the first time, but Phoenix even makes an L-shaped adapter that allows you to install the board horizontally—a neat fit in the original case. Because I did not have enough memory, or a version of the motherboard with the proper modifications, I could not try NewTek's Video Toaster in the video slot, but there is no reason why it should not work. Here again, however, the size of the A1000 is way too small for the board, which sticks out both at the back and front of the computer.

I did not try adding a math coprocessor, either. Because the 68000 has no built-in interface for this chip, it can be added only as a peripheral device through a software library. No major commercial program uses this type of software interface, so unless you plan to write your own software, the coprocessor won't do a thing for you.

The Phoenix motherboard is a remarkable achievement, but not one that I can recommend to all A1000 owners. Its nonstandard design and foreign origin may make it hard to service, and the $850 price is very close to the cost of a new A2000 or even an A500 with a hard drive. While the Phoenix offers two megabytes of chip RAM and a built-in SCSI controller (features that the A2000 cannot match), the A2000 has an accelerator slot. The layout of the Phoenix board makes it difficult if not impossible to add an accelerator that is any larger than ICD's AdSpeed board. In addition, to make full use of the board's expansion slots, you must leave the top off of the computer.

Still, for A1000 owners who need two megabytes of chip RAM, a clock/calendar, a hard drive, and the ability to switch between Kickstart ROM versions (or burn their own custom EPROMs), the Phoenix motherboard is probably the most economical way to obtain these features. It allows die-hard A1000 owners to retain at least the facade of their favorite computer, if not the electronics.

Contact 1.2

Desktop Utilities/Consultron

Replace your Rolodex.

By Micheal J. Savoie

A TIME SAVER for busy executives as well as programmers, **Contact 1.2** (***Desktop Utilities/Consultron***, $59.95) is a versatile database disguised as a simple name-address-and-phone record keeper.

The noncopy-protected program is simple to install and intuitive to work with. When not in use, Contact hides in memory, taking up all of 46K plus the size of the data file. A hot key recalls Contact from the nether regions of your hardware; the Close gadget returns it. When finished, you can remove it from memory with a menu option.

More than a record keeper, Contact lets you quickly integrate your records with other projects. Click the Type button to insert the contents of the currently selected record into your word processor's document—very handy for business letters. By saving my macros in a database file, I also use this feature to insert commonly used subroutines and macros into programs I'm writing. Contact even prints the current record's address on a mailing label at the touch of a key combination.

A phone call is faster than a letter, and Contact can automatically dial for you. Click the button beside the desired phone number, and Contact instructs your modem to call (on pulse or dial lines). When you hear the ring, simply pick up your phone (provided it is connected to the modem). Line's busy? Contact automatically redials after a user-specified interval, or you can try again instantly by clicking the Redial gadget. No modem? Switch Contact's Dial Mode setting to Audio, place your phone's receiver near your system's speaker, and click on the phone number's gadget (but dialing yourself is easier).

Contact's ARexx commands allow

you to use and automate Contact's features without even bringing the program on screen. The disk contains a few examples of using the ARexx commands, and the manual calls for ARexx programmers to send in scripts that use Contact's features for addition to the next version of the program. Don't jump to write an auto-save routine for the database, however, for Contact already saves any changes to your data file at user-specified intervals.

A Number Cruncher, Too!

Accompanying Contact is CalcKey 1.3, an easy-to-use calculator with nifty features and hexadecimal, octal, binary, and decimal modes. As with Contact, installing CalcKey is simple, and hot keys and menus call up the program, return it to RAM, and purge it from memory. The calculator is laid out similarly to that of Workbench (but offers more functions) and sports intelligently planned keyboard equivalents for all operations. CalcKey even inserts results in an application when you press the Tab key.

You probably won't need them, but your support options are limited if you do. Desktop Utilities offers a technical support line and a bulletin board in its native Australia—expensive from the US. At the time of this review, the US distributor, Consultron, provided only an hour of support per day, but it promises to leave the phone lines open longer soon.

This intuitive pair of programs will save you time and keystrokes. I recommend Contact and CalcKey for the home and office.

Hard Disk Organizer v3.04

Display Systems International

Workbench Management System v3.0

TTR Development

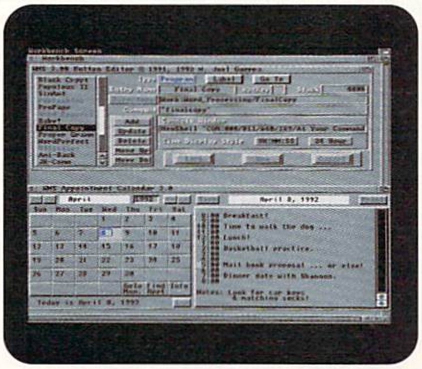
Help for the "organizationally challenged."

By Jeff James

I AM CHRONICALLY disorganized, as my mismatched socks and the jumbled contents of my Amiga's hard drive readily attest. Thankfully, **Hard Disk Organizer v3.04** (*Display Systems International*, $44.95) and **Workbench Management System v3.0** (*TTR Development*, $59.95) promise at least to get my hard drive in shape. With either of these programs, I can simply click on a colored button or two to find and load my favorite applications, rather than plow through layer upon layer of drawers and icons.



HDO's button-editor menu lets you specify the scripts attached to each button.



WMS's button editor and appointment calendar help you organize both your hard drive and your day.

With a Click or Script

Before you can begin clicking and launching, you must configure the programs. For Hard Disk Organizer (HDO), which loads on a custom Workbench screen, simply click on an empty button to call the button editor, where you change the button's color and name and attach to it scripts containing up to eight AmigaDOS commands on a total of eight script lines. Scripts can configure buttons to launch applications, format disks, edit your startup-sequence, compile programs, and manage tricky assign statements.

Opening in a resizable Workbench window, Workbench Managment System (WMS) also relies on a button editor for configuration. Unlike HDO, WMS's

Continued on p. 68.

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From p. 65.
button configuration is a point-and-click operation. Invoked by pressing Ctrl-F1, WMS's button editor opens a file requester with which you find and specify the program WMS should load when you subsequently click the selected button. In addition, WMS also lets you attach AmigaDOS scripts to buttons.

Although HDO only supports a maximum of 36 programmable buttons per screen, you can chain several copies of HDO together for a nearly unlimited number of buttons. Because WMS opens in a resizable window, you can stretch it to display more buttons. Unlike HDO, WMS lets you alter button size, which makes possible more than 384 buttons at once on an interlaced, hi-res screen. A pair of arrows can be used to scroll up and down the button list, which may contain a maximum of 65,535 buttons. WMS also offers hot keys and pull-down menus as alternate methods for loading programs.

Beyond the Buttons

While it may seem at first glance that these programs are butting heads for the same batch of customers, a number of additional and unique features make them appeal to separate audiences. HDO offers a screen saver and two levels of password protection—ideal for keeping unauthorized users out of your files. WMS ships with a small directory browser, a text editor, an appointment calendar, a push-button file compression/decompression utility, a phone-list manager, and a handy program that lists AmigaDOS error messages and other information.

Both these noncopy-protected programs can be installed on a hard drive, operate solidly on a wide variety of Amigas (including an A3000 running AmigaDOS 2.04), need less than 512K of RAM, and can be started via the Workbench, CLI, or automatically by editing your startup-sequence.

Installing HDO is a snap; a double-click on the installation icon quickly copies the necessary files and prepares the program for use. Should you need assistance, HDO's tiny manual is filled with screenshots and helpful examples. WMS installation didn't go quite as easily for me, but TTR assured me that an improved installation program has been added to newer versions of WMS.

While both these programs would be ideal for someone wanting an organized, push-button interface for programs on a hard disk, I hesitate to recommend either to novice users. HDO requires at least a basic understanding of how to create script files and assign statements. While configuring buttons is easier in WMS, the poor manual can make the program hard for inexperienced Amiga users.

If the thoughts of tinkering with script files in HDO or slogging through WMS' poor docs don't frighten you, both programs have something to offer. Hard Disk Organizer's extensive password-protection and screen-blanking features make it ideal for use on Amigas employed in public places such as schools and businesses. Workbench Management System, on the other hand, is more flexible and customizable, and its six mini-utilities make it the best dollar value.

Aegis Visionary

Oxxi

Program your own games.

By Peter Olafson

REMEMBER THIS OLD *Saturday Night Live* routine? Two Not-Ready-for-Prime-Time players are seen in a kitchen, struggling over an aerosol can and quarreling.

"It's a floor wax!" cries one.

"It's a dessert topping!" yells the other.

In steps Chevy Chase, who declares, "Relax, kids. It's a floor wax *and* a dessert topping!"

That's kind of the way I feel about **Aegis Visionary** ($99.95)—a new adventure-game authoring language from ***Oxxi*** that makes the gritty, down-on-your-knees work of game writing taste sweeter. This descendant of Text Adventure Construction Language (TACL) is designed to make writing text, text and graphic, pure graphic, or animated adventures easier, leaving the designer more freedom to dream and plot.

It succeeds. Good name, Visionary.

Visionary is something of a bridge between dedicated Amiga game programming languages and dedicated game-builders. That is, it's a programming language, all right—similar to BASIC, with a special shorthand, command set, learning curve and source

code—but with an English-based vocabulary that a nonprogrammer can grasp.

Write Yourself into a Dungeon

While you can enter code with just about any text editor, Oxxi has also released an exquisite writing tool as an upgrade to registered users—the Visionary Interactive Editor (VIE). It offers direct access to Visionary's core programs (which otherwise are invoked via the CLI); push-button, on-line docs; a raft of useful options for trolling around inside your game; and seven templates that save typing and also serve as reminders of how the code is structured.

Visionary itself is a set of eight linked subprograms. The language is built around 70 powerful commands that cut through the extra code you'd have to write if you were creating an adventure from scratch.

The two-pass compiler optimizes your game code into an executable version; the debugger allows you to test your game to find mistakes without your having to play it; and the linker turns the game into a finished stand-alone product that can run without Visionary.

The remaining four programs are graphic utilities that perform functions such as graphic and sound encryption, loading and closing intro screens, and determining coordinates for clickable areas in a mouse-driven game.

With Visionary, someone with a story and a passing knowledge of programming could probably sit down and beat out a simple text adventure in a day or two. But the program isn't designed to be a sit-down-and-whack-it-out adventure maker.

Visionary offers an enormous game environment, permitting adventures of up to 65,000 rooms. There are small cities that don't have that many rooms available (and especially not at the holidays). Each room—and each of the 65,000 permitted objects (including nonplayer characters)—can be assigned 32 attributes. Visionary also permits 128,000 variables, 65,000 subroutines, 65,000 action blocks, and around 4.3 billion characters of text.

This remarkable program supports (among other things) use of HAM and IFF graphics, the Blitter, either ANIM format or algorithmic animations, MED and MIDI music, and sampled sounds and speech. (It also runs under AmigaDOS 2.0 and can be installed on a hard disk.) In other words, Visionary can see you through to a finished game of commercial quality.

Don't Stumble in the Dark

If you don't have programming experience, you'll find help in John Olsen's *The Visionary Programmer's Handbook* ($29.95). It's a superb how-to manual—easy-going, personal, pleasant, and patient in tone, thorough to a fault, and—while focused on adventure writing with Visionary—full of thoughtful advice on adventure writing in general. It's essential reading. As a bonus, the *Handbook* is accompanied by a disk containing Olsen's crisp and to-the-point text-and-graphics adventure.

If I have a complaint about Visionary, it's that there's a bit too much "grunt" work involved for a write-your-own-adventure program. For instance, it's awkward to have to issue a call-print command for each line of text printed to the screen, and a graphic interface would really be handy to set up the display for games in which you need to split the screen. But it's not such a loud complaint, as I look forward to a planned "library" disk of programs.

For me, Visionary offers a lighted doorway into a vast imaginary world I'd always figured would be closed off.

Video Escort

Freelance Escort

Mr. Hardware

Secretaries you don't have to pay.

By Michael Hanish

THE HARDEST AND least inspiring part of being a free-lancer, if you're like me, is organizing all your paperwork. **Video Escort** and **Freelance Escort** (***Mr. Hardware***, $299.95 and $99.95) are specialized database applications for Superbase Professional (Oxxi, $495) that cut down on this drudge work. With both, you can generate and track contracts, appointments, contact lists, maintenance schedules, billing, and more. To save you more time, data entered in one form is automatically sent to other applicable forms.

Continued on p. 72.

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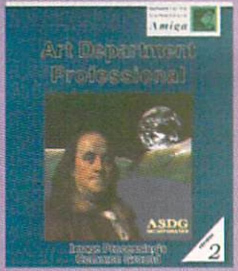
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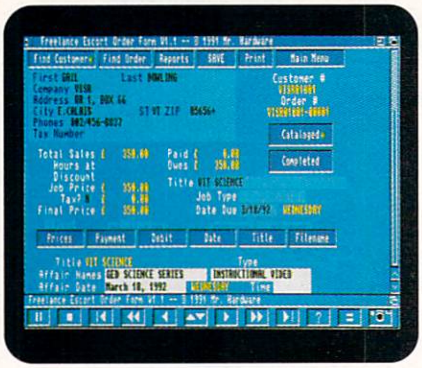
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From p. 69.

Requiring Superbase 3 and one megabyte to run, Video Escort is designed for free-lance video producers,



Freelance Escort organizes your client files and business.

particularly special-event videographers. For set up, enter your company's name, address, equipment, staff, and packages offered (production deals). Six customizable packages are available for four basic types of events (with one "Other" category for the unclassifiable). Each package and option carries both a description and a price tag, as well as an equipment and crew list.

The program also provides a form for logging all customers' names, addresses, interests, contacts, and order status. A separate file is maintained for each client, which makes it easy to keep track of the progress of negotiations and production. When you book a job, Video Escort tracks the payments made and prints a contract/agreement with all the terms.

Efficiency Expert

When production time rolls around, the program helps organize the shoot. An integrated form keeps track of crew assignments, equipment lists, and maintenance schedules. For the big picture, you can check to see how your staff and equipment are scheduled over all your booked projects. As each production ends, the program will print a final statement for the client. It can also print tape labels and keep a running total of entered data, including tax information.

Functioning similarly with Superbase 3 or 4, Freelance Escort is configured for a wide range of free-lance assignments. Company information and price schedules are entered at the beginning and can then be applied to each job's billing and record-keeping forms. Jobs are defined individually by type and then tracked by date, client, payment, tax amount, and appointment. Because it's less job-specific, Freelance Escort does not provide Video Escort's level of detailed scheduling and maintenance reports.

Both these noncopy-protected programs function stably and smoothly. Used regularly, they can be a considerable help in keeping a free-lance enterprise on track. Just remember: they can't track what you don't enter!

Personal Fonts Maker

Cloanto/Centaur Software

Try your hand at type design.

By Daryell Sipper

NO LONGER ARE you stuck with only prepackaged fonts; you can design your own screen and printer fonts with **Personal Fonts Maker** (***Cloanto/Centaur Software***, $99.95).

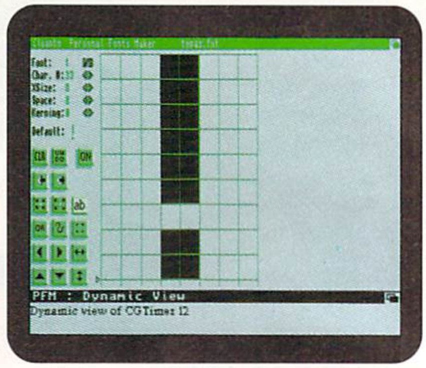
With Personal Fonts Maker (PFM), you can modify an entire font or individual characters, as well as create your own characters or remap their locations. For example, because you can create and import brushes, you could scan a typeface (or a logo), import the brush, and convert it to a font. You can also use AmigaDOS 2.0 outline fonts as a basis for your bitmap fonts. You can even steal ideas from an existing font; PFM allows you to work with two fonts at once and copy characters from one to the other. You can use different character sets with your font definitions, and several, such as the IBM PC-8 set, are included with PFM. When finished, save the font in standard bitmapped format or in PFM's proprietary format.

You can also create downloadable printer fonts and download font descriptions directly to your printer. If you should have compatibility problems with your printer, PFM includes a program called the Printer Driver Modifier.

No Lead Needed

The main work screen consists of the character-editing box, control gadgets, menus, and such information as the font you're working in, the type width in pixels, the default character, the ASCII character number, and spacing and kerning parameters. To select a character, change the character number or use the quick selection mode, which displays all characters of the font and lets you click on the one you want.

Gadgets let you erase the character bitmap from the editing box, horizontally and vertically flip your character, move or shift it in any direction, shrink or enlarge the editing box, and determine which characters are "on" and



Personal Fonts Maker lets you design and test your own fonts.

"off" within the font set. The dynamic view button opens a window in which you can type text to test the font's on-screen appearance. Undo gets you out of trouble. The Attributes menu lets you change a font's characteristics, such as italics, underlining, or shadowing, while the Preferences menu helps you specify your user interface, screen colors, the language you're using, and program defaults.

PFM offers short cuts, as well. You can use the macro programming language and macro recorder in both the screen- and printer-font environments. Store up to 26 macros in memory at one time, or define your set-up file for automatic loading on start-up. If macros aren't enough, PFM comes with a Font Format Description Language.

The 320-page manual has much information in it (including hard-drive installation details), but good luck to you in trying to find anything. It lacks an index and clear, instructional tutorials. To further clarify the basics, you can contact Centaur's technical support, but highly technical dilemmas require a fax to Cloanto in Italy.

The program never crashed on me (it runs in 512K, but one megabyte of RAM is recommended), and on the surface it appears to be powerful. Yet, I did not find Personal Fonts Maker easy or intuitive to use, and I never managed to master its power. I tried making a new screen font without success, and the 350-dpi fonts I downloaded to my laser printer looked pathetic and unprofessional. For my desktop-publishing business, I much prefer Type 1 PostScript and outline fonts to the bitmap fonts PFM produces. Perhaps videographers will find this program of some use. For me, however, Personal ►

Fonts Maker does not live up to its potential.

RaceTrace 1.32

RGB Software

From bitmaps to vectors.

By Eyo Sama

ANIMATORS AND ILLUSTRATORS have always desired the ability to convert bitmapped images to vector-based drawings. **RaceTrace 1.32** (***RGB Software/Activa International***, $134) attempts to fulfill this need.

To convert a bitmapped image into vectors that are editable in RaceTrace, you can trace all of an IFF image or any portion of it, then all its colors or just a selection of them. Unfortunately, these are the only controls you have over the tracing process, and this adversely affects the program's usefulness.

Specifically, you have no control over what the program should consider a straight line. When I traced the word Amiga, lines that were exactly horizontal or vertical were correctly converted to lines with two end points, but diagonal lines were made up of numerous points. Unlike most other Amiga tracing programs, RaceTrace follows the path of jagged edges instead of determining if a two-point line could be used to represent the same data. On the plus side, RaceTrace does perform the tracing quite rapidly, and you can manually remove the unwanted control points with RaceTrace's editing tools; but this is cumbersome.

I had hoped the Lines/Areas tool would also remove unwanted control points, but, while it removes points based on a user-defined threshold, it does not check to see if they are part of a real curve or corner or just control points that can be averaged to a line.

Once RaceTrace converts a bitmap into vector-based control points, you can move, insert, and delete the points that make up each created polygon. The undo feature is very useful here, as is the zoom. A pseudo-curve tool lets you select a line segment and shape it into a curve of multiple line segments.

Although RaceTrace is able to save files in the Professional Draw clip format, its use is limited because of these line-segment-based curves. Smooth Bezier curves would be much more appropriate for this vector-based format and for PostScript, because you would have fewer control points.

Nice Save

RaceTrace allows you to save created polygons in a multitude of other file formats. It saves polygons in Sculpt, Imagine, HPGL (for plotters), Digi-Works-3D, proprietary RaceTrace formats, and as Real-3D objects or polyhedrons. It also has two utility programs for adding faces to the polygons. In addition, the program can use color as depth information when saving to Sculpt files. The Sculpt and Imagine savers and utilities work well, though there are too many control points in the polygons if you do not first edit them manually.

I found RaceTrace fairly quick to learn and work with, thanks to the clean interface design and simple operation. The interface's toolbar is tiny and difficult to use, however, when you're working with high-resolution images. Thankfully, there are keyboard short-cuts for all the editing tools.

As to system requirements, the program will run under one megabyte of RAM, but more is better. It has no trouble adapting to AmigaDOS 2.0 or accelerators, and you can easily install it on a hard disk. With a little bit more polish, RaceTrace will really shine.

B A C K T A L K

CANDID RESPONSES TO *AMIGAWORLD* REVIEWS

Improvements Overlooked

The first half of Eyo Sama's article "The Painter's Guide to Structured Drawing" (Feb. '92, p. 35) is excellent, but we feel that the second half may be misleading. It appears from reading Mr. Sama's comments that he may have been reviewing the old (2.0) version of Stylus's ProVector. In particular, the current version of ProVector (2.1) includes a dramatically improved WYSIWYG Bezier drawing option and numerous other improvements to the interface. Furthermore, not a single feature new to 2.1 was mentioned. ProVector 2.1 has been shipping since October of 1991, and upgrades are available to all registered users.

Simultaneously, the article discusses both features and a version number of Professional Draw (Gold Disk) that are not available at this time (to the best of our knowledge). If Mr. Sama was privy to information or software that was not yet released, that should have been clearly spelled out for your readers, rather than praising one program as superior because of features that are not yet available, and at the same time criticizing an outdated version of ProVector when the new features are now available.

We also feel the article could have been more even-handed. Why does Mr. Sama close the discussions of ProVector and DesignWorks (New Horizons) with negative comments, yet make no criticism of Pro Draw? While we could easily list a number of drawbacks of Pro Draw, it is not in that spirit that we write this letter or do business.

We take great offense to Mr. Sama's criticism of ProVector's "nonstandard" drawing tools and interface and of a "weak" Bezier drawing tool. Mr. Sama's definition of "standard" is "as far as other structured-drawing software is concerned." A blanket criticism of "nonstandard interface" in this context is misleading and inherently antiprogress.

We researched available structured-drawing programs on many platforms before developing ProVector. We found that most complaints from artists related to the "clunky" method of drawing curves and the intolerably slow speed of all structured-drawing programs. We believe that the ProVector 2.1 interface and speed are major improvements over similar Amiga, MS-DOS and Mac programs. Many people who earn their living illustrating on computers have told us they agree. When a program features a different interface, isn't it just possible that it is an improvement?

Chuck Baldwin
Vice President, Marketing; Stylus, Inc.
Jan. 10, 1992

For the record, Eyo Sama did have ProVector 2.1 available at the time. —Editors ■

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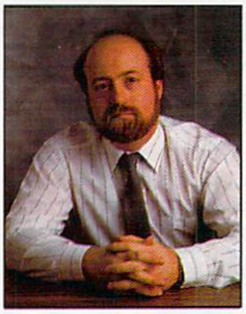
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HELP KEY

Exploring the AmigaBasic-AmigaDOS compatibility question, plus what an A500 owner needs for animation.

By Louis R. Wallace

AMIGABASIC UPDATE:

In a previous column, I mentioned that AmigaBasic was incompatible with AmigaDOS 2.0. I got several responses from readers (thanks to all of you for writing!) who stated that AmigaBasic worked just fine on their 2.04-equipped computers. So I did a bit more checking and came up with some basic information that I will pass on.

It does appear that you can use AmigaBasic with AmigaDOS 2.04. It isn't a perfect match, however. Because of all the ways in which you can configure your Workbench 2.0 system, you might find that the AmigaBasic screen is messed up a bit. The prime culprit is fonts, especially those that are larger than the default Topaz used in 1.3.

If you are experiencing menu and requester difficulties with AmigaBasic and AmigaDOS 2.04, try resetting your fonts to Topaz from Workbench's Font Preference tool. There are probably some other 2.04 quirks that can show up when you're using AmigaBasic and Workbench 2.04, but the fix seems to be to make your Workbench as much like 1.3 as possible. (Like castor oil, this isn't pleasant medicine, but it does the job.)

What caused the confusion about AmigaBasic and Workbench 2.04 was the fact that when 2.0 was first released, it was released on the A3000. And there are definite problems with this combination. It seems that what AmigaBasic really doesn't like is advanced processors such as the 68020, 68030 or 68040. Nor does it work well with 32-bit memory.

Checking with a CBM AmigaBasic guru, I was told that a partial fix is available to make AmigaBasic work with advanced processors. If you are up to using a program like Filezap (available on BBSs, networks, or Fred Fish types of disk collections), you can change the offending bytes. The problem bytes are at hex address F384, which currently reads 20327900. Change this (using Filezap or some other binary file editor) to 20327800. (These values are, of course, in hexadecimal notation.) This change will let AmigaBasic work on 32-bit processors.

However, if you have any 32-bit memory in your system (which is all of the nonchip memory on an A3000) you will still have problems. For this, the only fix is to use a utility program like NoFastMem to turn off the offending memory. AmigaBasic will then run—but many people will naturally consider this a crippling maneuver and won't be willing to do it.

There are still options for Basic programmers. AMOS, an advanced Basic language, is available (with a compiler option), while multimedia programming languages such as AmigaVision, CanDo and Foundation will often work in place of more traditional languages. And new versions of existing Basics are under way. HiSoft has announced plans for a new version of its popular Basic compiler, and True Basic is currently updating its Basic to make it AmigaDOS 2.0-compatible. Both of these should be available later this year.

WHAT DO I NEED?

Q: *I am the owner of a circa-1987 Amiga 500 with three megabytes of RAM and a 40MB GVP Impact Series II hard drive. While I now use it primarily for writing and entertainment, my wife and I want to start exploring areas such as art and animation. With every issue of* AmigaWorld, *I feel myself getting left farther behind, and unless I win the lottery, I won't be able to afford a new A3000 with all the bells and whistles. Given the constraints of a limited budget, is it worthwhile for me to purchase an accelerator and the enhanced chip set (ECS)? If I do this, will I also need to buy DKB's Megachip 2000? Will I need a new monitor? Should I get Workbench 2.0? And would I need the ECS for Workbench 2.0?*

T. Sayles
Mundelein, Illinois

A: In general, if you want to create and play animations, you will immediately want an accelerator. For 3-D animations, it's generally an essential godsend, but even other animation software, including 2-D, will benefit from the extra speed by being able to play animations at a faster frame rate. If your graphics work is very chip-RAM intensive, you will quickly find DKB's Megachip an essential component. Even with lots of fast RAM, users with only 512K of chip RAM often find themselves running out of memory.

Should you get Workbench 2.0? The answer is yes—with one caveat: You mentioned that you use your Amiga for entertainment, so be warned that some games don't work well with the 2.0 upgrade.

Do you need ECS in order to use Workbench 2.0? The answer is no, but there are some features of 2.0 that require the ECS. Many users, however, are contentedly using 2.0 with the older chip set. And finally the monitor. If you want to run display modes like Productivity (640×480, four-color) or plan on getting ICD's A500 video de-interlacer, then you should consider a multisync monitor. But if you don't want to run interlaced displays (or don't mind the flicker), then you really don't have to have a new monitor. It just depends on what you want to do. ■

Need some help or advice about Amiga matters? Send your questions and problems to Help Key, c/o AmigaWorld *Editorial, 80 Elm St., Peterborough, NH 03458.*

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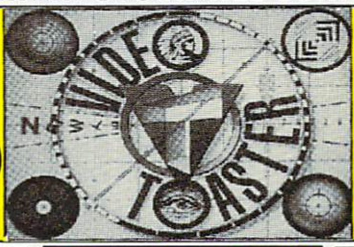
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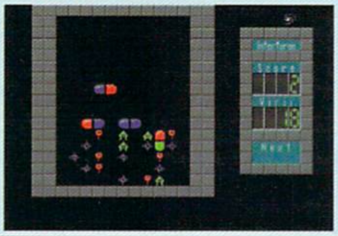
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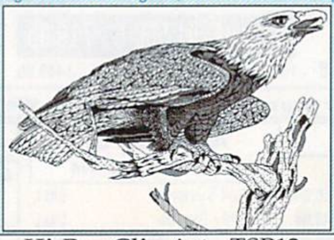
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TSP19: PacMan Classics Contains Mazeman, Zonix and PacMan87--all great implementations of the origional arcade classic.

TSP18: MS-DOS Emulation Contains PCTask and IBeM, two shareware IBM-MS Dos emulators for your Amiga. Also included are utilities to allow Amiga drives to read/write 720K format MS-DOS disks--Multidos and MSH.

TSP17: Printer Drivers This disk contains over 70 printer drivers for many popular printers.

TSP16: Telecommunication This disk contains two first-class modem programs, NComm and Access. This disk is for the beginner or expert telecommunicator, featuring all the popular communication protocols, including X, Y and Z-Modem. NComm has very advanced script capabilities for performing automated log-ins, downloads and uploads.


Hi-Res Clip Art - TSP12

TSP15: MED This disk contains the premier music package, MED (Musical EDitor). It will allow you to use digitized sound samples as your instruments and use them in your own songs. Its tremendous editing power makes MED more of a musical word-processor. An extremely well-done program. Many commercial software companies use this package to create soundtracks for their entertainment programs.

TSP14: Plotters This disk contains several of the best mathematical plotting programs available for the Amiga. Includes AmigaPlot--a 3-dimensional mathematical function plotter (pictured), Aplot2.0, and PlotXY

TSP13: Tetris Games This disk contains 6 flavors of the classic game "Tetris." Some have artificial intelligence, others a variety of play-styles/skill levels/number of players.

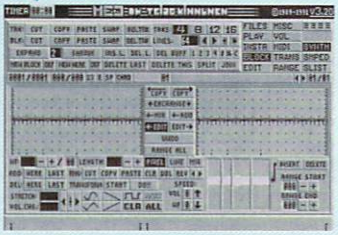
TSP12: ClipArt This disk contains several excellent bitmapped images for use in Desktop Publishing or similar programs.

TSP11: Operation Desert Storm: This is a complete Hyperbook-type application that will take you through a guided tour of the recent conflict in The Gulf.

TSP10: Fractals Scenery (pictured) will create realistic fractal landscapes. Genesis allows the creation of various landscapes with user-definable levels of complexity. Also included are various Mandelbrot generators, including TMandel, Mandel-Mountains and FracGen.

TSP9: Utilities #1 IconMeister—an Icon editor with a complete set of editing/painting tools. TJFormat—a disk formatting program that will format disks that AmigaDOS wont. ChartMaster—a graphing tool that allows you to generate and save different graphs in IFF format. Graph3D lets you visualize complex data in 3-D and save the results. StructGen lets you create gadgets, text, bitmaps and window structures and the program will automagically write the "C" source code for you. LabelMaker is a very easy to use, full featured label printer. DoublePrint fascilitates printing of text files on both sides of paper.

TSP8: Clipart Black & White and colorful clipart for a variety of needs including desktop publishing/video. People, holiday related, school items, scrolls, food, monsters, fish, lobsters, symbols and lots more.


MED - Musical Editor on TSP15

TSP7: 3D Vector Objects #2 Books, Early American telephone, barrels, gun, spaceships, lamps, trombone, bugle, skateboard, Lego-Rover, remote control, glider and airplane. All objects in Sculpt format.

TSP6: 3D Vector Objects #1 Lamp, mirror, bed, chair, fire hydrant, lamp post, street lamp, street sign, traffic light, cannon, cannon supplies, rose, fork, spoon, knife and plate. All objects in Sculpt format.

TSP5: Games 3 CrossCircuit is a one or two-player action/logic game that requires fast reflexes. WordSearch will allow you to generate your own word-search puzzles. In DrugBusters you rid the streets of cigarettes, alcohol, pills and needles. In Cinco you try to get five X's in a row before your opponent. ColorLogic is an excellent MasterMind type game.

TSP4: Games 2 Dyno-Wars—a strategic checker-style game. Kooties—assemble a bug before the computer beats you to it. BlockBuster is a colorful, well done Tetris-type game. Warrior is a fun shoot'em-up adventure game. MicroMan is a graphic maze game played with a joystick. Battle the computer's armies to take over the planet in Circe.

TSP3: Games 1 Crystal Caverns is an adventure game with randomly generated worlds--you'll never trash the same world twice! Dot2Dot is an adaptation of the classic 2-player connect-the-dot game. PizzaDeliveryMan has you running through the streets to get those pies to your customers. TinyBall is the world's smallest baseball game. Surround-Cycles is a high-speed arcade game, based on the light cycle races from the Disney movie Tron.

TSP2: Sounds Animal sounds, musical instruments and many, many more--43 sound samples in all!

TSP1: Maps of USA, Canada and Europe Hi-Res IFF

brushes of all 50 US States, 10 Canadian Provinces and countries in Europe. Each map has a 3D extrusion effect with cast shadow.

Special Edition Toolchest

RK1: MegaBall - This disk contains the full-release version of MegaBall, complete with the level editor to create your own challenging worlds to conquer. This game is quite similar to Arkanoid and allows two players with stereo sound and 5 soundtracks! Special RK price, $14.95.

RK2: MachIII - This remarkable utility will allow you to record any mouse click or keypress and play it back as a macro at any time, inside any program. Also provides memory info/clock, alarm, screen blanker, mouse accelerator, mouse-to-menu, sunmouse and window cycling. Special RK price $14.95.

TC34AB: Optimizer will permanently speedup your hard-drive or floppy disks. LCD Calc is a nice full-screen calculator. BBaseII is a useful database program. FixDisk will correct many problems with disks. BizCalc is a loan analyser. Interferon is a Tetris-type game. Nebula is a 3D space game. PicBase will allow you to track all the IFF images you have. Hate is a great Zaxxon clone.



AmigaPlot featured on - TSP14

TC33AB: Measures 1.0 is an incredibly useful utility that will convert any type of measurement to another. DiskLabeler is a database designed for storing and printing 3." disk labels. Jewels is a Tetris-esque game of action and strategy. Switch is a fun board-game. Gfxclipper will allow you to grab any screen and save it as an IFF picture. Softball Manager is a database for storing stats for softball—any number of leagues may be tracked. WBExec allows you to execute CLI commands from within the Workbench. Several Clipart images are also included.

TC32AB: Computer Coloring Book is a delightful program for children of all ages—comes with 15 pages of pictures to color again and again. Listmaker lets you make, edit, combine and print lists of words—great for those spelling tests! Moresmooth! scrolls text files smoothly on the screen and allows easy printing. Pocket Billiards lets you choose from several of the most popular pool games with realistic action. Texture allows you to create, manipulate and save (in standard IFF format) realistic fractal textured surfaces. Plague is a monster maze game. Also includes Screen Fader, Snowbench, and FlipBench.

TC31AB: Calendar Publisher is a professional-caliber calendar maker that is customizable. CrossCircuit is a 1 or 2 player action/logic game that calls for fast reflexes and thinking. APR is a much-needed printer utility. Pizza Delivery Man is a maze game where you deliver pies in your neighborhood. Multiplayer is a single program that will let you see IFF pictures/brushes or playback IFF sound samples. Also includes RAMgauge, 3-D vector objects and Hi-Res IFF brushes of maps and flags of European countries.

TC26AB: Word Search Maker lets you create word-search puzzles. TimeCalc is useful for anyone who has to calculate hours and minutes (great for adding up times of CD's to make tapes!) Drugbusters is a fun game where you get rid of cigarettes, booze, pills and needles. Wordfinder lets you search binary or text files for a particular word or string (good for getting hints in your adventure games!). KeyClick will add a small audible click to your keys and MouseClick will do the same for the mouse buttons. Seawar is a game between the Allied Navy and the Empire Fleet. Plus Early American 3-D vector objects, digitized sound effects, and a directory program.

TC25AB: ScreenToIFF captures your screen to an IFF file. PopColors lets you change the colors of your Workbench screen. Warrior is a fun shoot'em-up/adventure game for one or two players. Kaleidoscope is a line drawing program. Blockbusters is a game where you get rid of blocks by pushing matching blocks into them. Amidemo will show-off your Amigas ability to do solid-polygon animations. Microscope lets you examine memory at any location. Also includes Hi-Res IFF brushes of all 50 states and 10 Canadian provinces, nine digitized sounds and two small disk utilities and printer utility.

TC24AB: TableMaker is a tool for effortlessly building numerical tables. Kooties is a fun game where you have to assemble a bug before the computer beats you to it. HyperText lets you put links in a text file to other text, graphics, sound, animation, ARexx and other applications. The Little Black Book is a wonderfully useful telephone and address book. Color Logic is a MasterMind-type game. Also includes several disk and memory utilities—and some animal sound effects to top it off.



Scenery Maker on TSP10

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TC23AB: WhereIs lets you quickly and painlessly find a misplaced file on your drive. Select creates a window from which you can run your favorite programs. MatheMagic lets you find the day of the week for any date in the century, also lets you enter statistical data to be analyzed, graphs data, and solves linear algebraic equations. Pointer List Maker lets you create your own pointers or import pointers from other programs and save them in a disk file. Dyno-Wars requires more strategy and thought than your regular checker board game. Also includes Mr. Monster and Trilion games, 3-D objects, six sound effects and an animation of a pretzel.

TC22AB: Amiga Checkbook is a fast checkbook manager with check printing ability, budget analysis, and a report writer. AmiCrypt is a file encryption/decryption tool to password-protect any file...a must for security. WaveSyn lets you design musical instruments and waveforms for use in other programs. It also lets you play your keyboard like a piano. Cinco is a game where you try to get five X's in a row before your opponent does. AlterCLI lets you change attributes of your CLI window (width, title, depth, height, location, colors) with a single command—very useful for scripts. Also includes an animation by renowned Amiga-artist Lou Markoya, as well as 3-D objects.

TC21AB: Circe is a "risk-style" game where you battle the computer to take over the planet. Batchman allows you to execute CLI programs, batch files and ARexx scripts by simply clicking on a gadget. Colors prints color test sheets and assigns RGB values to printer and screen output....absolutely invaluable to achieve the best color printing results. Easyfile is a powerful database for home or a small business. Sprite Editor lets you easily create animated sprites. Plus 3-D fruit objects and five sampled sounds.

TC16AB: Cyberscape generates complex 3-D vector objects of terrain and saves your objects in Sculpt or Turbo-Silver format. Mathplotter graphs mathematical equations in both 2-D and 3-D. Double Print prints your text files on both sides of the paper. Metamorph, a graphic adventure game. Tinyball—the worlds smallest baseball arcade game and 6 digitized sound effects.

TC15AB: Labelmaker is a very easy to use label program. SurroundCycles, a high-speed arcade game. Dot2Dot, an adaptation of the classical connect-the-dot game. A tutorial on animation techniques by Amiga-artist extraordinaire Brad Schenck complete with one of his animations. Also includes a collection of clip-art and more animal sounds.

TC14AB: AmigoFile is a database and address book. Graph 3-D lets you visualize complex data in a 3-D manner and save the results. Spectrogram analyzes and displays digitized sounds. Pteronadonaball—an animation by Lou Markoya. Also includes 3-D Tic Tac Toe, 3-D objects, food clip-art, and sampled sounds.

TC13AB: StrucGen lets you create gadget, text, bitmap, and window structures and writes the C source code for you. LifeCycles plots your biorhythms. Create spectacular images with Mandelbrots. Look, a CLI utility that helps you find files on your disk quickly and easily. Plus 3-D objects, holiday clip-art, an Amiga Flight animation, drive head cleaning utility, and technical discussion on how AmigaDOS stores information on disk.

TC12: TJFormat formats disks that AmigaDOS normally wont. ChartMaster is a powerful graphing tool. MoreCandy generates an assortment of colorful graphic patterns and allows you to save them to disk. Shark, a game where you have to eat all the little perch you can catch to stay alive. Plus B&W clip-art, spaceship 3-D vector objects, an animation, and Speakeasy (C source code for the programmer to add speech to C programs).

TC11: DiskSalvage will fix corrupted disks and recover deleted files. IconMeister is an advanced Icon editor. AlienDuel is a fast, shoot'em-up game. Crystal Caverns is a colorful, graphic adventure game like the arcade game. Also includes an animation, sound samples, 3D dinner table objects, and Hi-Res monster clip-art.

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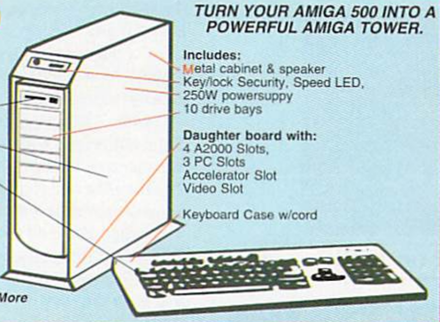
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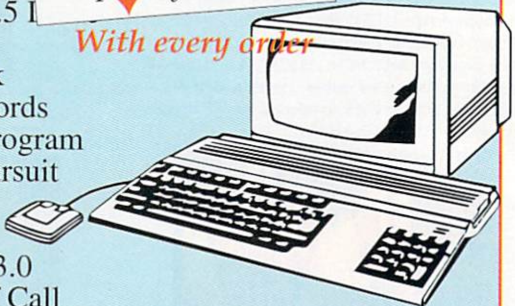
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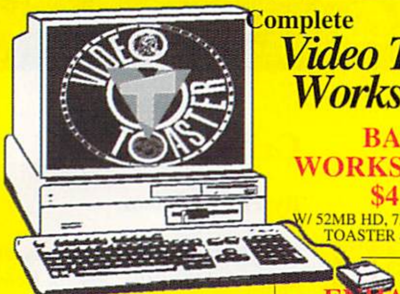
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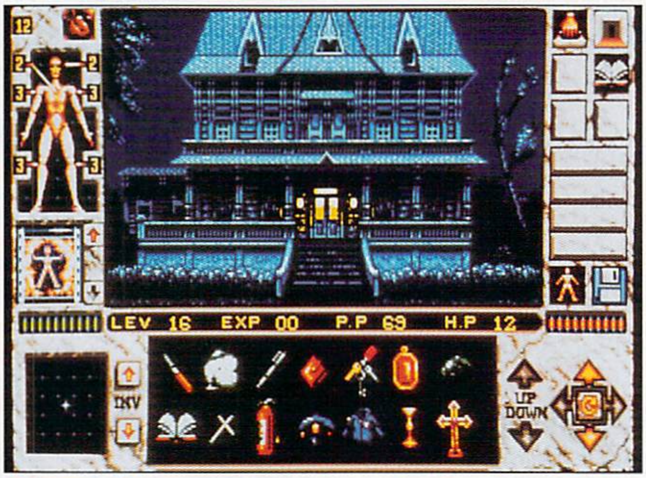
THE GAME PRESERVE

Elvira II: The Jaws of Cerberus

By Rob Lawrence

Five times larger than the original game, **Elvira II: The Jaws of Cerberus** (*Accolade*, $59.95) spans seven disks with new graphics, animation, music, and (of course) loads of gore.

In Elvira II, you must search for the Mistress in a haunted house, a graveyard and its underlying catacombs, and a huge cave network infested with giant, Raid-proof insects. Her captor is the monstrous, three-headed, demonic hound Cerberus, who has taken over the movie studio and released his minions. Fail to rescue her, and Elvira becomes dog chow.



Not afraid of a haunted house, are you?

Every control is accessed through the mouse, including movement, combat commands, spell mixing and casting, and object manipulations. Icons are used in just about every possible place. A new hit-point allocation system shows damage sustained by the sections of your anatomy, and a motion detector scans your surroundings for enemies; both, however, are really just gimmicks that I feel use up valuable screen space.

Although Elvira II plays from floppies on a one-meg system, I strongly recommend a hard drive. The box claims you need 1.5 megs to play from a hard drive, but Elvira runs if you boot your one-meg system and go directly to the CLI, without Workbench in memory.

Now for my biggest complaint: speed. Even from a hard drive, play can languish miserably because of processing time. Animations are slowed considerably, and the travel rate in the labyrinth sections is about one-sixth that of Dungeon Master or a similar game. Even the mouse response is noticeably delayed. Still, it's fun to play and incredibly tough; Elvira II will challenge you for a long time.

Sim Ant: The Electronic Ant Colony

By John Ryan

An insect Sim City, **Sim Ant: The Electronic Colony** (*Maxis Software*, $59.95) is a system simulation that is not only educational, but utterly enjoyable in ways that may surprise you. Sim Ant strips you of any preconceptions you may have had about the insect world and, indeed, brings your thinking down to the level of the ant.

Plunked down in the backyard of a suburban home, you must nurture and expand a burgeoning ant community. Along the way you'll have to contend with spiders, ant lions, marauding red ants, rain, lawn mowers, pesticides, and, of course, ►

Crib Notes

By Peter Olafson

Last time, we pried The Jaws of Cerberus (*Accolade*, $59.95) from around that bit o'computer-game crumpet named Elvira. This time, we'll give him root canal.

When we left off our exploration of Studio 2's haunted house, we'd just found the hidden altar off one of the bedrooms. Now to explore the rest of the second floor. The bedroom next door is dead empty and, at first glance, so's the one next to it. Trouble is, you don't get a second glance. Success in this sequence relies on having good armor, high courage, and the foresight to pick up the tuning fork (and the pillow under it) before you vamoose.

Now you're ready for the attic, reached by the entrance at the far end of the hall and inhabited by a very unpleasant creature. Combat isn't an option, but using the tuning fork in timely fashion will shatter the skylight over his coffin and allow daylight to do the job for you.

With the ladder from the storage room (first door on the left downstairs), the skylight also provides access to the roof. If you've already nabbed the copper rod from the boiler room below the studio offices—using a fireball spell on the ice jam between the boilers will do it—you can set this up on the chimney, where it'll make a nice lightning rod. (If not, it can wait.)

This should make you think of the cellar and Mr. Monster again. You've probably already swept the left-hand room clear of any useful portables. (If not, you can come back later; the test tubes and brain will prove especially handy.) To make more progress there, you'll need to visit the costume department back at the studio offices. You should now be strong enough to take on ►

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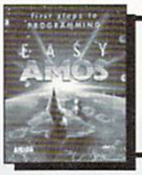
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thoughtlessly-placed human footsteps. You'll also have to monitor the health and well-being of the colony, its behavior, and the caste (the type of ants the colony produces) of your bug nation. Above all, you must lead your workers to food, your queens to fertile new territory, and your soldiers to battle.

Sim Ant's layout is a lot like Sim City's. A map encompasses much of the screen, along with an icon bar that can be clicked on to move around the colony or the world beyond it. To monitor your progress, you can call up additional maps, graphs, and charts. Your ants carry on with their lives while you decide what to do.

Sim Ant offers three levels of play, plus a tutorial. Besides the quick-start game, the full game is a contest between you and the red ants to see who can infest both the yard in which you live and the house beyond. Experimental Play allows you to get down to the brass tacks of colony life—build mazes, add food or ants, or experiment with a variety of



Running an ant colony is no picnic.

other elements—without the hassle of competition.

The graphics of Sim Ant are as good as or better than Sim City's. In fact, you can play the noncopy-protected, hard-drive-installable game in either lo-res (one megabyte required) or hi-res (two-meg) modes. The manual, which is the best I've ever seen, recommends at least a 16-MHz accelerator for the hi-res mode. Without one, the graphics are a bit cumbersome and slow, even switching from map to map in lo-res. Even so, I was extremely surprised by the quality of both graphics modes, and the sound effects are just superb.

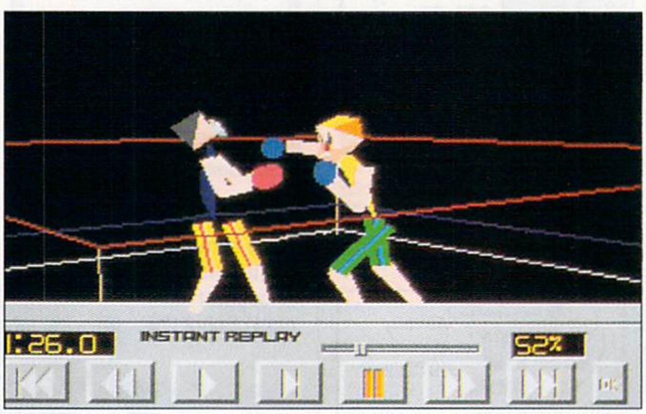
A few sessions with Sim Ant can change your whole perspective on the ant world. You find yourself really caring what happens to them—and loathing those careless, tennis-shoed humans in the house.

4-D Boxing

By Joe DiCara

As its title implies, **4-D Boxing** (***DSI/Electronic Arts***, $49.95) brings an added dimension to gaming. The designers, DSI, call it TruMotion. To create the effect, DSI digitized the movements of real boxers, used them as the framework for the motion path and timing, and overlayed the computer animation. The result is amazing.

The game begins with a set-up screen for determining the mode of play (human versus human or versus the computer) and selecting your opponent (one of 12 boxers who vary in rank and gender). While you can



The excitement of real boxing—without the black eyes.

immediately choose to have a match with the Champ, all you will accomplish by that is quickly getting your block knocked off.

Instead, it's wise to visit ►

the witch. She has a weak spot—her left temple—and her head explodes nicely if bashed enough there. Yuck.

Still in the dark? The switch is on the wall behind you. The wizard outfit and the lab coat will both prove useful, and you'll note that one of the other costumes has a sword attached to it. Grab that as well.

Across the hall, use the makeup kit to put together a disguise that makes you look like the picture of the lab technician found in the bedroom upstairs. Be sure to get every detail right; if even an eyebrow is out of place, it won't work. (You'll also need a wizard disguise a bit later in the game, so do that as well.)

There's nothing much you can do with the monster right now, but the doctor across the way is another story—if you're wearing the lab getup. Be nice to him, and offer to help. He doesn't need you, but your offer will take the edge off his temper, and he'll make up a poison for you (provided you have the formula from your riflings in the library).

Use the poison on the meat from the meat locker, and then deposit the meat in the fish tank in the study. Exit one piranha. You can now retrieve the key from the tank bottom, and if you've been a nosey bloke, you already know there's a safe behind the picture of the duck. This must be the peace pipe that the Indian down in the studio basement mentioned, right? Strike one!

Ah, progress! You love it, right? We're done here until the endgame, and you can move on to the game's real challenge: The Catacombs of Studio 3. The bat that dive-bombs you on the way in can really take the stuffing out of you if you hang around trying to whack it, so don't. Get on into the church.

The clergyman at the back is history (for the time being, anyway), but don't neglect the holy water in the font, and let's have a little spell-making party while we're at it, okay? When you're ready, tug the pulpit out of the way and descend into the crypt. Make short work of the two whatever-they-ares in here (after all, they're chained up), move the slab aside and start climbing. Don't worry about the fist coming out of the wall; as far as I can tell, it's just window dressing.

Each of the six levels is 20 by 20, with good distances between gates and the levers that open them, so

Continued on p. 92.

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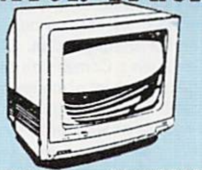
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the gym for conditioning, training or creating a customized boxer. In the gym, your boxer's strengths and abilities can be modified by adjusting two sets of interacting sliders.

Once in the ring, your viewport is framed by boxer-status indicators, round information, and a bar graph that helps determine when boxers are within punching range. There are ten selectable perspectives for viewing the action, which itself scores straight 10s.

Contests are furious toe-to-toe slugfests. As punches connect, carefully synchronized sounds let you almost feel the impact. You'll wince and duck as punches are thrown and landed. TruMotion is no gimmick! Punching control might seem a bit sluggish, but the real problem is that you're trying to punch faster than humanly possible. Remember, the boxers' actions are modeled after human motions. The effect diminishes on accelerated Amigas, but not totally.

So that unaccelerated systems don't get slapped with further speed penalties, the program senses your computer's capability and adjusts the on-screen detail accordingly. On A3000s and A2500s, you see a fighter made of more polygons, color, and animated facial expressions. On stock machines, the boxer's head is simply a single-colored sphere, and all background detail is eliminated. The simplified detail results in action that has almost the same movement and feel as those you can experience on faster machines.

For copy protection, you're asked to look up a fighter found in the manual, then type in his name. Apparently the IBM version of this game has a few more boxers available, because in the Amiga version some guys can't be found. Expect a few failures before the game loads. It's worth the extra tries. 4-D Boxing is a challenging and exciting game—the new heavyweight champ of boxing simulations.

Seven Good Games in Small Packages

By Peter Olafson

You've probably seen a number of those modest little games on the fringes of your dealer's shelves. Whether it's the hand-drawn cover or the photocopied disk labels or the absence of a box, there's always something mildly out-of-kilter about their appearance when placed beside the latest confections from Electroniccolade or MicroPrognosis. And not really knowing what they are, you don't feelyou are justified in taking a chance on them.

I decided to take a look at a few of these typically small-company and homespun games to see if we were all missing anything. In most cases, the answer is a decided "yes," and in some cases, we're missing a great deal.

Severed Heads

Let's start with **Severed Heads** (***Sir-Rah Software***, $39.95). That got your attention, right? Mine, too. In this text-and-graphics adventure, the year is 2255 and man is still alive, but young women are getting dismembered right and left. You're an undercover agent masquerading as a surgeon at the off-world BioTech Laboratories—a cryogenic research outfit—and charged with solving a series of grisly murders and stopping the spread of an illegal drug.

The game's rather good. The story has a stark, claustrophobic tone and the

Continued on p. 90.

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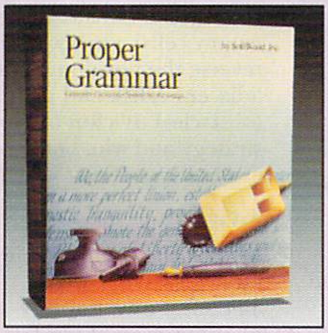
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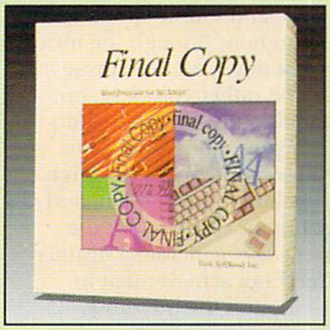
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From p. 87.
graphics—lots of them, with some interlaced and digitized—are consistently unusual, artful, or atmospheric, and work well with the text. The impression they make lasts beyond the game itself. At its best, playing Severed Heads feels like being caught in some strange, cyclical dream.

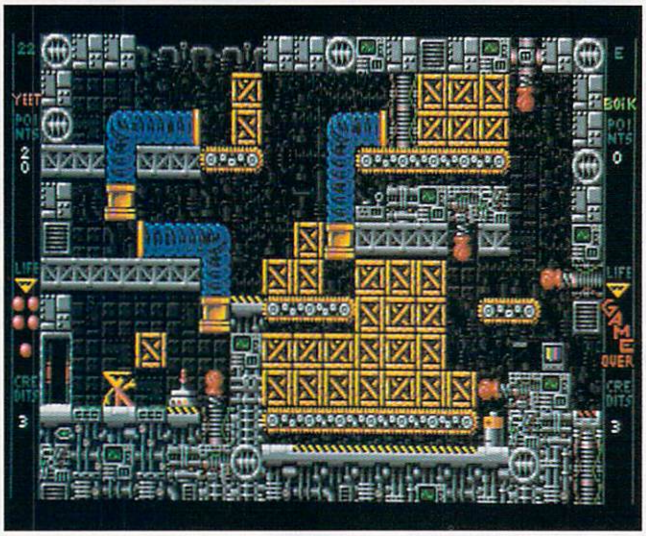
I'd have voted for more music and sound effects throughout (though the intro is just nifty), and the prose can be rather colorless compared to the writing in Infocom games. I'd also like to run some segments through a spelling, punctuation, and grammar checker. But the game *does* generate a distinct "feel" (an achievement in itself), and the puzzles I encountered were logical. Somebody evidently kept his head about him while designing this one.

BeBop 'N Drop

You may already have seen **BeBop 'N Drop**'s baby pictures. The original incarnation of this Tetris variant was the shareware game, Obsess-O-Matic. This commercial edition (***Palomax***, $34.95) takes the falling-pieces theme about as far as it can go: pieces with common themes (playing cards, vehicles) in odd configurations and with special talents; nonlinear playfields; a two-player mode; and even scrambled-picture puzzles to solve on the side. If you're a Tetris lover, this is probably a must. Then again, if you're a *serious* Tetris lover, get a life, eh? There are already about a dozen Tetris-style games in the public domain alone, and enough is enough.

Boppin'

Boppin' (***KarmaSoft***, $39.95), is a more interesting (not to mention weird) variation on a similar theme—with a good deal of platform-game influence mixed in. Seems as though all the video-game monsters have vanished from their games, and the



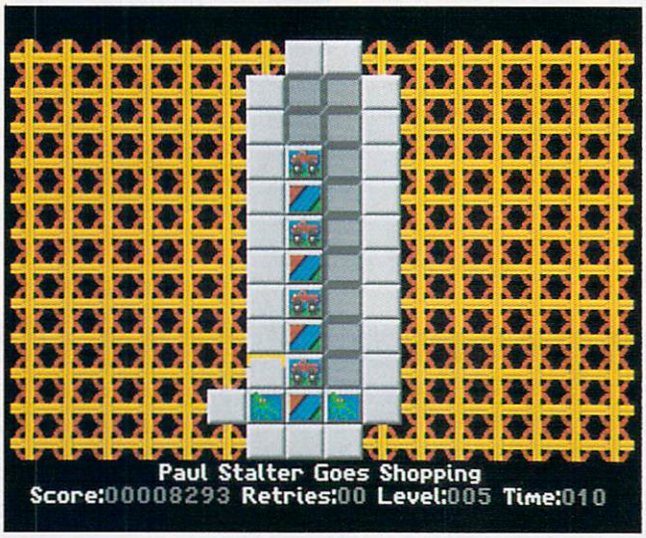
In Boppin', you *free* monsters instead of slaying them.

game heros—including "the generic elf" and a Mario lookalike—have enlisted a couple of little sunglasses-wearing triangleheads named Yeet and Boik to free the monsters from the clutches of, uh, Hunnybunz. (Hey, I just review 'em.) These two have to cart around blocks of various designs via a system of elevators and platforms and toss them into formations of the same design to make the whole formation disappear.

This is utterly delightful stuff. The graphics are sterling, the sounds and animation first-rate, the intro is *very* professional, and the 150 levels are inventive and increasingly difficult. (An editor and a mess of extra tiles help you build your own.) I also liked the comments from the designers available via menu; it lent Boppin' a personal touch you rarely see in major-label releases. I'm not at all sure I approve of the little trianglehead shooting himself in the mouth with a pistol when he finally fails—not exactly the right message, y'know?—but otherwise, this is top-notch.

Thromulus: The Enemy Within

Thromulus: The Enemy Within (***TTR Development***, $44.95) is barking up the same addictive tree. A Go/Othello/Reversi variant, Thromulus is a great little game. It's a battle between two rival organisms in the bloodstream of a hapless lab assistant. Each piece you place turns each adjacent enemy piece to its own color—in a rather neat bit of animation—and complicating the issue are white blood cells (which kill all adjacent enemy cells), viruses (which reverse the position of all adjacent cells), and platelets (obstacles). It's fun to plot strategy and win, but it's fun even to lose or just watch.



Match the tiles to make them disappear in 4-Get-It.

4-Get-It

My favorite of this whole bunch, **4-Get-It** (***TTR***, $44.95) is as vigorously playable as anything I've laid hands on lately. The concept is very straightforward: Manipulate tiles so that matching ones wind up side-by-side. (They then vanish.) Clear the playfield without stranding any tiles, and move on to the next.

It's a simple little game at heart, but 4-Get-It uses the Amiga's special gifts to their fullest extent. (Watch the effortless way it pulls the title logo back up the screen in mirror-image, or the lightning-quick and lovely screens in which the playfields are unfolded.) And they've got a sense of humor about themselves too: they are not beyond putting Al Bundy and Amy the Squirrel in the high-score table or introducing stupid text at the bottom of the screen by saying "Look! Stupid text at the bottom of the screen!" I laughed all the way to level 20. TTR is on to something wonderful here, and I hope we see more from them.

Under Pressure

Actually, I have to wonder whether **TTR** belongs in here at all, as they've also picked up domestic distribution of some new Electronic Zoo titles—a rather big-companyish thing to do. ►

The first, **Under Pressure** ($44.95), is a huge, sprite-scrolling shoot-'em-up of the type made popular by Psygnosis. You're guiding a sort of combination of the Imperial Walker from The Empire Strikes Back and the ED209 police droid from RoboCop through ... well, I don't exactly know what. The docs say only that "The pressure is building up and you don't have a moment to lose." So much for atmosphere. At least the graphics, animations, and sound are excellent.

A sticker on the cover notes that the game designers also created Psygnosis's Shadow of the Beast, but that's more telling than they may know: As in Shadow, you'll die a dozen deaths for each segment's worth of progress. Under Pressure is supremely difficult.

Chaos in Andromeda

Finally, also from Europe—and the only role-playing game in the bunch—is **Chaos in Andromeda** (***Online Entertainment/Michtron***, $39.95). It's a real charmer on many scores. You've been summoned from the future to bring a kidnapped political figure/scientist back from the planet Koranis 12 or "neutralize" him. The perspective is the look-down type typical of RPGs, but you'll love the N-gauge scale—everything's tiny—and the detail in the cutaway views when you enter a building.

Managing this miniature world may take some getting used to, but the real trick here is mastering the complex story line. The interface isn't an obstacle; it's slick and easy to use, and it almost feels as though you're wearing it. Most agreeably, there's lots of talking to people, and rather less of blowing them away. This is a regular treat. You'd never guess it from the cover.

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mapping will definitely help. Keep an eye out for trip wires and pressure plates, and click on them to disable them before crossing.

Most of the niches and rooms are boobytrapped—this is an Elvira game, after all—so save your game before tackling each and try to figure out the solution from the results. (For instance, the Resist Fire spell should be used with fireball traps, the Breathe Underwater spell for poison gas, and Mindlock with traps that kill your magic.)

The Excalibur of Elvira II is the dagger found in an niche on the southwestern portion of Level Two. It increases your power points with each use; zap it with Freezing Blade and Bless spells, and you'll be almost unstoppable. (The one in the north-central portion of Level 6 isn't bad, either.) Check out the recipe for Freezing Blade, and you'll see it requires some advance preparation in the walk-in freezer.

That does it for this outing. Next time: The last of Elvira and the beginning of Out of This World by numbers. Meanwhile, if you're having trouble with an adventure or role-playing game, you can reach me by US mail at 25 Belmont Ave., Madison, NJ 07940, or via electronic mail on GEnie and Portal at PETEROO, on CompuServe at 74160-3053, and via Usenet at Peteroo@cup.portal.com. ■

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Featured Disk

DD79abcd: Amiga "C" Tutorial - This is the most comprehensive C language--*Amiga oriented*--set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples on every topic on Amiga programming. 4 disk set, counts as 3.

New Disks

VO9: 24-Bit - Contains Rend24 which allows you to proof Toaster-generated 24-bit animations. Also contains utils to convert IFF's to IBM VGA/Windows readable format. Also contains latest release of JPEG file compressor .

VO8: CompuGraphic Fonts - Contains 2 clipart-style fonts and 4 actual typefaces for use with WB2.04 and it's Fountain utility. Great for desktop publishing and/or video projects.

VO7: StarTrek Objects - Contains the USS Reliant, NCC-1701D (the Enterprise from Star Trek:TNG) and a Ferengi Marauder ship. Also contains a fully detailed Porsche 911 and Apache Attack Helicopter. Imagine format.

VO6: Modelling Objects - Contains 20 vector objects in Imagine format. These are perfect for use with VO5 or your favorite 3D modelling program. Includes Amiga 3000, space station & many more!

VO5: Modelling - Vertex allows you to create 3-D objects without using the abstract X, Y and Z views. Loads Sculpt-3D/4D, Turbo Silver, Imagine, LightWave, GEO and Wavefront formats. MagicTween will metamorphasize any two pictures by automatically animate the "in-between" frames.

V04: Video & Anim - Video_DB will catalog all of your videotapes. Slate is a sharp graphic of a slate for your productions. CyroUtils splits, makes and gives info about ANIMs. RTAP lets you play large ANIMs on small memory machines.

V03: Image Utils - let VideoToolsOnTap let you tap into the video power of your Amiga for fades, color and greybars as well as a plethora of other indespensable video functions. TitleGen will do professional crawling titles. JPEG converts JPEG<->24-bit IFF with amazing compression. ImageLab performs special effects on IFFs.

V02: Stillstore - Used to create the "over the shoulder" graphic inserts ala the 11:00 news.

V01: Graphics - Picbase will let you view and track ALL of your IFF pictures over all of those floppies! Freepaint is a Deluxe-Paint workalike. Agraph is a powerful utility to produce snazzy graphs.

FD80: Technoban - If you like logic puzzles, this disk is for you! Create your own puzzles with the built-in editor or play the many pre-made ones. Requires Fat Agnus (1MB of Chip memory).

FD79: Addams Family Quiz - They're delightfully creepy and spooky and now they're in your Amiga! Classic digitized graphics and sound samples make this a real crowd-pleaser. Wait till you "talk with Cousin Itt!"

FD78: Potpourri - Lothian is a great Ultima-type adventure game with great graphics. Rocky is a remake of the classic Boulderdash.

FD77: Arcade Series - Galaga'92 is a clone of the arcade game of the same name with several gameplay enhancements--with smooooth, sharp graphics, it's better than the origional! Pharaohs Curse is a clone of the origional C64 classic. Diplomacy is a beautifully computerized version of the Avalon Hill board game--conquer or be conquered! Galaga requires 68020+

FD76: Catacomb - is a full graphic adventure game with beautiful graphics and a very slick icon/mouse driven interface.

FD75: Arcade Series - Descender is a clone of the classic arcade game "Tempest"; complete with vectorized graphics. Tanx is the classic battle of trajectories and inertia between two tanks—incredibly well done! Search is a maze game unlike any other—included is a level editor too. (Tanx requires 1 meg chip memory=Fat Agnus)

FD74: Arcade Series - RingWar is an "Outer Limits" clone with vectorized graphics. MotherLode is a "Lode Runner" clone with 50 levels! In BlitzTanks, they're coming at you from all directions!! Call in air strikes and use your heavy artillery to survive!

FD73: Arcade Series - Intruder Alert! is a MULTI-level "Berserk" clone. Features smooth gameplay, great graphics & digitized sound f/x.

FD72: Sword of the Warlock - This is a demo version of a great public domain graphic dungeon adventure game. The adventure spans three diskettes and allows two players to go adventuring. The game has a 'Bards Tale' feel to it. Three disk set, counts as 2. Requires 1 meg of RAM and 2 floppy drives or HD.

FD71A&B: Star Trek: TNG Trivia Challenge - So you think you know The Next Generation, huh? Complete with fantastic sampled sounds and digitized images, this game even looks and sounds like a genuine Star Trek terminal! VERY thorough and complete! Counts as 2 disks.

FD70: SpaceGames - Contains AmiGoids, >finally!< an Asteroids game that takes advantage of the Amiga—totally configurable with great sound and grpahics. In Cosmostruction the object of the game is for each Cosmostruction team to acquire the most points while construction energy ducts between the space station and planetoids.

FD69: MindGames - Had enough of shoot-em up games? Relax and let these 21 games exercise your mind instead of your wrist.

FD68: Potpourri - Eternal Rome is a strategic simulation of the Roman Empire including military, diplomatic, political, economic and social factors. Lord of Hosts is a board strategy game for 2 players. In Moonshine, you've got to get the hootch across the state line—a great rolling, scrolling driving game!

FD67: Arcade - Includes Llamatron a well-done 'Robotron' clone. Hate is a "terrific" commercial grade Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!

FD64: Games - Wizzy's Quest - a "great" 50 level game with great graphics, Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game; 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip)

Special Product!

QT1: The A64 Package - A very complete Commodore 64 emulator. Supports any CPU and is fully compatable with WB2.0. This version includes a special adaptor that will allow you to connect your 64's 1541 disk drive to your parallel port of your Amiga for total emulation. Two disk set, counts as two. Special price $49.95 - including hardware.

FD62: PomPom Gunner. An extremely smooth and well done World War II gunner simulation. Requires 1 megabyte of memory.

WB116: Databases - This is what you've been waiting for! Contains 5 uniquely specialized dtabase programs for tracking: Videotapes, CD's, Magazine Articles, Comic Books and Trading Cards!

WB115: Term - If you have AmigaDOS 2.04 and a modem, then this is *THE* program for you. Term *totally* conforms to the User Interface Style Guide for 2.04, has an ARexx port, and supports all popular file-transfer protocols through XPR libraries. We wish all programs were written to this caliber.

WB114: Fonts #4 - Contains 36 bitmap system fonts.

WB113: Sid II - Why pay 40 bucks for a directory utility, when this one will do it all plus much more! A truly professional-caliber program. Sid 1 was our best, now *completely* rewritten, Sid 2 will undoubtedly astound you.

WB112: Productivity/Business - Stock Analysis allows automated downloading of stock data with full analysis capabilities (requires modem). SubStore will allow you to log magazines and articles with full search/scan/print capabilities.

WB111: Cellular Automa - Straight from the pages of the January 1990 issue of Scientific American, this electronic model will allow you to simulate cellular circuits.

WB110: Electronic Baby Book - Immortalize your children on your Amiga! Tracks everything about your newborn—first steps, words, tooth, birthdays, X-mas, friends, etc—even space for a digitized photo!

WB109: VerseWise - Display, search and output The New Testament to text files or your printer.

DD84: Proteus BBS - This disk contains the full-blown version of the Proteus BBS software. Totally configurable & ultimately powerful. Requires a hard-drive, ARexx and at least a meg of memory.

DD83: IBM - Not one, but *TWO* IBM emulators that will allow the running of MS-DOS software *with* Amiga programs!!! Comes complete with programs to turn your Amiga floppy drives into 720K IBM compatable drives.

DD82: Unix - Contains a working demo of Minix - a Unix workalike. Minix is system call compatable with V7 of Unix.

Fun Disks

FD5: Tactical Games - BullRun - a Civil war battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.

FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: Pacman - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.

FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!

FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great graphic interface. Play time several weeks!

FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.

FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).

FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.

FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD26:Arcade Games - Marble_slide is a commercial quality game—similar to a Lucas game named PipeDreams, excellent playability and entertainment. Mutants—a small version of the same arcade game. SuperBreakout is a Pong/Arkanoids type game.

FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.

FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games! - Air Traffic Control - a good ATC simulation, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.

FD32: Flight Simulator - An instrument flight simulator for a DC10.

FD33: Arcade Games - Ffreddy a Mario Brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and Wetroids a wonderful version of asteroids with a hilarious twist.

FD35: Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.

FD37A&B:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.

FD38: Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.

FD39A&B: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Excellent!!! Counts as two disks. Requires 512k

FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new Amiga 9000. Most of all, don't forget to stay alive...

FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.

FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.

FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.

FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.

FD56: Arcade - Includes SpaceWar. HueyRaid is a well done helicopter arcade game. PowerPong's a great expanded pong game.

FD57: Arcade Games - Includes 2 truly commercial quality games. MegaBall, an Arkanoid-ish game, features 5 musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychadellic trip through several different worlds—each distinctly different.

FD58: GAMES! - Includes Steinschlag; a great Tetris clone from Germany with music. SCombat: simulate battle between up to 40 players & monsters. Imperium Romanum: Battle up to 4 players for control of the Mediterranean in this Risk-esque game.

FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shootemup. Crossword will take lists of words & automatically generate word-search puzzles for any Epson compatable printer.

FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon; a great Dr. Mario clone. Enigma; is it a gameor a puzzle?

FD61: Games - Solitaire; great graphics, plays two versions. Klide; an interesting piece of eye candy. Extreme Violence; 2 player kill or bekilled game. YATC; A Tetris clone with Artifical Intelligence. Genesis; create realistic 3d fractal worlds.

Workbench Disks

WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of several transfer protocols, Comm (1.34) - Latest version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220

WB5: Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.

WB6: Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.

WB9: Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.

WB10: Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus III.

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and uch more.

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.

WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.

WB18: Word/Text Processors - This disk contains the best editors.

Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.

WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLook gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.

WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP!

WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to do harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk!

WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

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WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), , Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

WB35: 3D Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with DKBRender.

WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!

WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15

WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.

WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection. Requires 2 drives or HD.

WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program. Version 3.20, which is compatable with WB2.04.

WB43: Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!

WB46: Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.

WB47: Clip Art - HighRes clip art with the following motifs - hair, drafting, summer, animals and macfood.

WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.

WB49ABC:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!

WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.

WB53: Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. C-Light is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...

WB54: Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio - a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.

WB55: Application - XCopyIII - a full featured disk copier, make backups of copy protected disks. RoadRoute - find the quickest route from one city to another, highway description included. Diary - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.

WB57: Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.

WB61: Intermediate Utilities - Includes programs to help to drasticaly decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.

WB62: Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.

WB63: Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.

WB66: Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.

WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.

WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.

WB70: Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program, open the door to the libraries of Adobe and PostScript fonts! Calendar - month templates in PageStream form. Post - a full featured postscript file display and print utility.

WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.

WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility, SSS - this screen capture program can grab almost any screen including games, Today - a personal calender, Tarot - fortune teller, and Grammar - grammar checker.

WB79: Home & Business Accounting - Includes Ckbacct - the most complete checkbook accounting program going, LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse, Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.

WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.

WB82: Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, and Mechanix. 2 disks, counts as 1.

WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.

WB85: Graphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff Image processing package.

WB86: Centurian Press - An electronic newspaper - requires AmigaVision.

WB88ABC: The Complete Bible - A three disk set, with the entire text of the New Testament and Old Testament-King James version. Great search/print utilities. Three disk set, counts as three.

WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Music can then be played with your favorite Pd Music program. Also contains Drums, a very nice drum machine. This disk requires some knowledge of the CLI.

WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (floppy & hard), MachIII (screen blanker, hotkey, mouse accel., macro, clock utility), GOMF (a gurubuster)and PrintStudio.

WB95: Checkbook Accountant 2.1 - This is definitely commercial grade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.

WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.

WB98: Business - Includes BBaseII a nice, powerful database; BizCalc—a personal or mortgage loan calculator with amortization capabilities, Loop—a flowchart maker, Formmaker - design professional forms on your Epson LQ-2500 compatible printer.

WB99: Lifestyles - Includes AGene—family tree program that tracks up to 600 people/marriages/etc. Landscape is a CAD program to create gardens/landscapes. Loom simulates an 8 harness loom; experiment with pattern design in an instant feedback environment.

WB101: Chemesthetics - is a program that displays molecules as a calotte model. This kind of display contains a certain esthetic attitude, even extremely poisonous molecules like nicotine and dioxine look quite nice.

WB102: Telecommunications - Contains the programs NComm 2.0 and VT100-29B. Zmodem protocols, XPR protocol support, full VT100 emulation. NComm's script language is so powerful it comes with a script file that creates a full-featured BBS system.

WB103: Music - Contains 12 "great" Soundtracker/MED music MODules...complete with programmable/shuffle player...8 bit audio never sounded so hot! Two disk set counts as two.

WB104: GrabBag - Q&A Trivia (requires AmigaVision) is a trivia game for 1/2 players...add your own questions to customize the difficulty level! Sysinfo is great for telling you how fast/slow your computer is, what boards are installed, chipsets, etc. AmiGazer will plot stars in the heaven from any position on earth complete with magnitudes and constellation identification.

WB106: Home Manager - This is a great all-in-one address book with an autodialer/notepad/to-do list/appointment scheduler/home inventory database and phone number dialer.

WB107A&B: Educational - Drawmap is a program that generates representations such as hemispherical views, and orbital views of the Earth's surface, complete with national boundaries. Screens can be printed or saved to disk as standard IFF files. Full user-configurable online help facility. 68020+ version included. 2 disk set, counts as 1!

It's Here!

Release 2.04 of AmigaDOS for the A500/A2000!!! Includes ROMs, disks and full documentation. Requires installation.

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WB105A&B: Workbench 2.0 Extras #2

This set contains the programs that should have been included with WB2.0. These powerful utilities take full advantage of the *many* new capabilities that are available in Workbench 2.0.

Tool Manager - a wonderful utility to add programs to your TOOL menu, create a collection of icons on the workbench to easily launch frequently used programs...and much more! A *true* must have utility!!!--*All* of our Amigas rely on this utility. (See the review in AmigaWorld-May'92)

Virus Checker - Full virus protection can be yours by simply dropping this icon in your WBStartup drawer.

Degrader - gives you tools to try to make non-2.0 happy programs work!

Icon - Enhances Workbench's "Show All" to display over 40 distinct icons for different types of files (text, IFF's, source codes, libraries, etc)

Font Editor - Create/edit bitmap fonts with full color support!

Screen Blankers - ala fractals and spliners and swarming bees! No more boring black screen. Colorful, interesting and highly hypnotic effects!

Requester Enhancers - no more stale "Please Insert Volume" requesters--these are animated requesters for *all* of the system's requesters.

CPUBlit - speeds up text displays for owners of 68020+ CPU's.

SafeReboot - adds a safe way to reboot your computer...can greatly reduce disk validation errors!

Two disk set, counts as two.

WB108: OctaMED - This breakthrough program doubles your Amiga's sound capabilities from 4 channels to an ear-popping 8 channels! All the renound editing capabilities of MED plus 4 more channels! If you thought your Amiga sounded good before...you aint heard nuthin' yet!

Dev Disks

DD45: AREXX Programs - This disk contains several useful arexx programs and examples, PopCLI4 - The latest of a must have utility.

DD47: Pascal - This disk contains everything needed to program in Pascal. Includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.

DD49: C Compiler - contains zc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.

DD50: ARexx #2 - a must have set of tutorials on ARexx and several useful examples and utilities for ARexx development.

DD51: Circuit Analysis - Aspice (2.3) A full featured program for electric circuit analysis.

DD52: Scientific - Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 600k of Lattice C source routines that can be included in your own programs.

DD54: Compression - This disk is loaded with all of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc, Lharc, Lhwarp, Pkax, PowerPacker a must have by all, Zip, Warp, and Zoo. Also IFFcrunch an excellent compression for IFF files.

DD55: ARP - On this disk you will find the complete ArpRel3.0 release including the full user docs, the full Developers guide. ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your system easier to use from the CLI.

DD57: Advanced Utilities - Msh - like Cross-dos, copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and vice versa, Also several utilities that improve your startup-sequence, plus 25 more programs.

DD62: Basic and Xscheme - Cursor - a full featured Amiga Basic compiler, sbasic and ftext - several wonderful routines to help in basic programers, and Xscheme - an interpreted object oriented language.

DD66: Programming ToolBox - Many programs to help in your development efforts (most for C some for basic) Includes programs to generate requesters, an incredible spritemaker toolbox, to greatly aid compiling, convert DPaint brushes to C structures, a great library manager, and many more wonderful time savers!

DD69:Advanced Utilities - SerNet and ParNet - Connect two Amiga's and share resources, MemMonitor - Similar to WFrag but greatly improved, Selector - put menus on your workbench screen, and more.

DD71A&B:C Compiler - This disk contains DICE, Matthew Dillon's full featured, powerful C compiler and environment system. 2 Disks, counts as 2.

DD72: VT Emulators - Contains three powerful full featured VT emulators, with many advanced features including Kermit, Xmodem and Tektronix protocols. VaxTerm, VLT, and more.

DD77: Fortran - Contains a full featured FORTRAN77 environmental development system. Also contains EzAsm a strongly macro dependent 68000 assembler.

DD78: Menus & System Enhancements - Several neat programs to aid in launching programs from special icons (Next computer style), adding WorkBench menus and more. Also contains many useful programs to determine operation system configuration, memory usage, load and many other important utilizations.

DD81: ARexx Tutorial - Includes several sample Arexx scripts and sample programs. Also includes APig; a library that gives you access to Intuition from within Arexx scripts.

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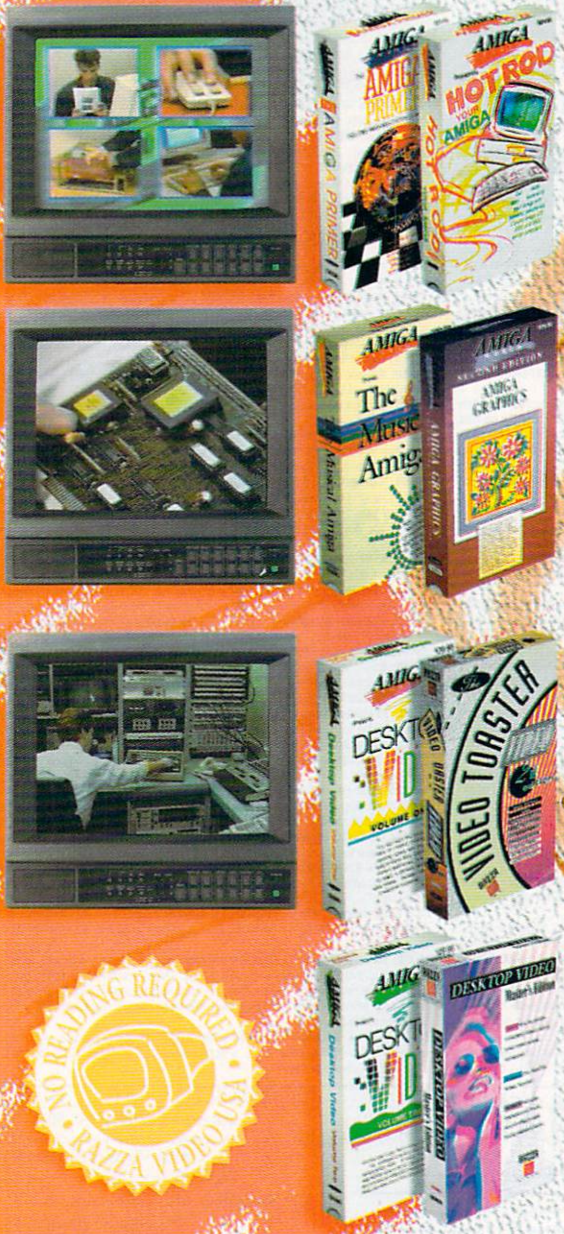
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THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

But Use the Interface Standard!

After reading about and later using Workbench 2.04, I was pleased to see that Commodore had improved the Amiga's interface. My satisfaction soon turned to frustration, however, when I saw both commercial and public domain programs claiming to use the "2.0, 3-D interface" but having different radio buttons, text gadgets, no use of the standard file requester, and many other departures from the "Amiga User Interface Style Guide." Commodore made the effort to provide developers with a better way to put their applications together, and yet I've seen only a few programs that even come close to following these standards.

Come on, programmers and developers! The Amiga's interface standards must be used to be of any benefit. If the Amiga is to survive in today's highly competitive computer market, its software must reflect the quality of its hardware. That's why Commodore overhauled the Workbench in the first place.

Gregory Donner
Elkhart, Indiana

Insufficient Audio for Pros

I probably speak for many Amiga owners who'd like to use their machines in high-end audio applications in their recording studios and as a complement to their video productions. Here are my concerns:

1. "Unfortunately, at the time of this writing, no [hi-res digitizers] have been released." This comment on page 28 of Bob Lindstrom's article "Sampling the Future of Sound" (Apr. '92) says a lot. I've read about and have had Sunrize's promo stuff for almost a year. Can't use what doesn't exist!

2. Twelve-bit audio is absolutely insufficient for professional use in multitracking, mastering, etc. Using Amiga-generated sounds is also useless. Why is there such a dichotomy between what's available for Amiga video and audio, when the two are so obviously related?

Paul Santo
Bryantville, Massachusetts

A Nod to Good Service

After reading February's "Chief Concerns," I decided to test out New Horizons. I had purchased ProWrite 3.2 and, along with my warranty card, I sent a letter about a problem I encountered. Within a few weeks, I received a personal reply and a slight upgrade. The only real problem I had with the program is being worked out. In the letter I got, there were also hints to the effect that they were working on a newer, faster version. This, I believe, is the kind of service that was spoken of in the editorial column.

D. Troutman
Marysville, Pennsylvania

> **Is there any other company that so consistently shoots itself in the foot?**

Wake-Up Call

Commodore's raising of the price of the Amiga 2000 to $2000 hammers another nail into the coffin holding its US market share. Is there any other company that so consistently shoots itself in the foot in showing its lack of marketing savvy by its actions or inactions?

Six years ago, Commodore had a golden opportunity to increase its market share, but missed the boat. My letters to CBM remain unanswered. Even a form letter would have been nice. I have given up. I love the Amiga, but my respect for and commitment to Commodore are no longer warranted. This isn't a hate letter for Commodore. It's a wake-up call to a company that needs one desperately.

Gordon Johnson
Grand Rapids, Michigan

MIDI Setup Help

I am a new Amiga user interested in starting a MIDI setup, but I know next to nothing about MIDI hardware. Therefore, Steve Quinzi's article "Anatomy of a MIDI Studio" (Apr. '92, p. 37) was—in addition to the technical information presented—especially helpful to me in that a page near the end was devoted to listing typical hardware setups. As a new user, I needed to be given examples of what hardware combinations I might buy.

Keep up the good work!

Joe Thomas
Ballston Spa, New York

A Revolutionary Animation Compressor?

I have heard of something quite revolutionary: a new kind of compression technique called MPEG, which, from descriptions, sounds like the animation equivalent of JPEG. If MPEG does indeed compress animation data as well as it does image data, we could be seeing animations being played back in RAM that are ten times longer than at present.

To my knowledge, MPEG is not yet available on any computer platform, but wouldn't it be nice if it came to the Amiga shortly after its release?

Marc R. Hoffman
McCook, Nebraska

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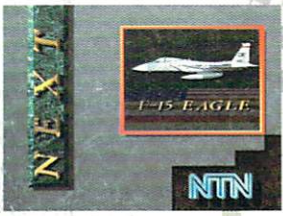
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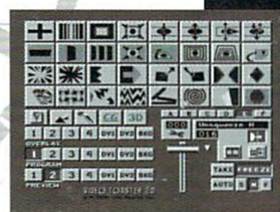


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